UNIVERSITY
MEDICAL MAGAZINE

EDITED UNDER THE AUSPICES
OF THE
ALUMNI AND FACULTY OF MEDICINE
OF THE
UNIVERSITY OF PENNSYLVANIA.

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VOLUME VI.

OCTOBER, 1893, TO SEPTEMBER, 1894.

PHILADELPHIA
UNIVERSITY OF PENNSYLVANIA PRESS
1894

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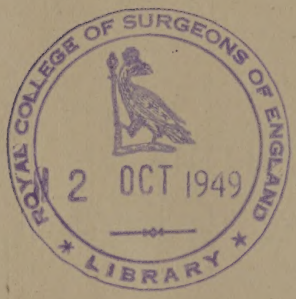

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UNIVERSITY
MEDICAL MAGAZINE

OCTOBER, 1893.

FIRST PAN-AMERICAN MEDICAL CONGRESS.

PRESIDENT'S ADDRESS,[1]

By William Pepper, M.D., LL.D.,

Provost and Professor of the the Theory and Practice of Medicine in the University of Pennsylvania.

Gentlemen of the First Pan-American Medical Congress:

This occasion is an unique one, and the thoughts which force themselves on the minds of all of us are, I am convinced, so similar that the briefest greeting might well seem the most fitting address. But when I reflect that I stand here to represent the original committee appointed in pursuance of the resolution which was adopted unanimously on May 5, 1891, at the meeting of the American Medical Association, and that this resolution extended a cordial invitation to the medical profession of the Western Hemisphere to assemble here in a Congress, I realize the unusual dignity of the duty I must discharge. If anything could add to the dignity of this assemblage, which for the first time asserts formally the organic union of the physicians of all America, it is the fact that the Congress of the United States, impressed with the importance of our proposed meeting, passed a joint resolution (July 18, 1892), requesting the President to extend those invitations in response to which we welcome the presence here of official delegates from all the Governments of the Western Hemisphere. In like manner are the several States of our own Union, the principal municipalities, and many of the leading educational institutions, both of North and South America, represented officially. You will not, then, think it strange that, called upon to address such an assemblage in this Columbian year, it should seem less fitting to dwell upon any technical topic

[1] Delivered at Washington, Sept. 6, 1893.

than to turn our thoughts to the state of this continent and of its aboriginal inhabitants at the time of its discovery by Columbus, and to the obstacles which opposed him and the great men who completed his work. For these have had a bearing on the racial developments which have since occurred here, and should be held in mind in any estimate of the progress we have made during the subsequent four centuries. The state of medical science in Europe at the time of the discovery, and the spirit which has controlled its subsequent course, are fitly to be studied in connection with what we have accomplished during the same period and with the opportunities which present themselves to us at this time.

The recognition of the appropriateness and importance of this great meeting has been immediate and universal. International although it is, the basis of its organization and the special features which mark it remove all possible suspicion of an imitation of, or of interference with, the great International Congress whose successive meetings form a crescendo scale of scientific and administrative triumphs which the medical profession of the world regards with justifiable pride.

Our executive committee and our efficient general secretary, to whose unselfish energy and masterly powers of organization we owe a great debt of gratitude, studiously avoided the possibility of any such interference by delaying the selection of a date for our meeting until that of the Congress at Rome was announced, and by then adopting a date which not only permitted but encouraged the presence later at Rome of those who should gather here. I can only add my deep regrets that the unhappy reappearance of cholera in Southern Europe —striking example as it is of the urgent importance of the very work which calls us together—has necessitated a postponement until next spring, a postponement which, however, there is no reason to fear will lessen the complete success of the meeting on its newly-announced date. The International Medical Congress is, indeed, a splendid demonstration of the solidarity of the profession and of the world-wide scope of the objects we pursue.

The Congress represents much more, however, than our common interest in medical science and the common feeling of brotherhood which animates the entire profession. It is, indeed, it always has been, and forever may it so continue, the glory of the medical profession that their allegiance is one and undivided, for their service is solely in the cause of truth and humanity. Dynasties have risen and crumbled; the map of the world has been changed times almost without number, but the march of medical science through the ages has been ever onward and upward toward those lofty goals—the prevention of disease, the relief of suffering, the improvement of the race.

For us who meet here there is all of this glorious recollection and animating purpose, and there is much more to unite and to inspire us. We meet under the shadow of giant conceptions, as old as Aristotle, which agitated the minds of the great thinkers of antiquity, and were but slowly approaching a definite form when the sublime faith and genius of Columbus solved the problem of the globe.

It is true that this vast American continent, with its 16,500,000 square miles of territory, already numbers 110,000,000 inhabitants, embracing all types of human life and many varieties of political organization. But all that has yet been accomplished is but the feeble beginning of the development which awaits us. When Canning secured the recognition of the Republics of South America, he boasted that he had called the New World into existence to redress the balance of the Old, and yet the luminous suggestions of Franklin, of Bolivar, and of Blaine, as to the political and commercial relations of the countries of the Western Hemisphere, are still only prophesies which must long await their fulfillment.

The destinies of nations are slowly evolved, and occurrences which fill the horizon of a generation appear to the broad gaze of history as mere features in the great panorama of the ages.

Even a period of four hundred years is but a fraction of the history of Spain, of France, of England. Yet four hundred years ago this entire continent was not only undiscovered and unknown, but its very existence was unsuspected save in the ingenious speculation of philosophers. We recall the familiar but ever interesting lines of Seneca:

> Venient annis sæcula seris
> Quibus Oceanus vincula rerum
> Laxet, et ingens pateat tellus,
> Tiphys que novos detegat orbes
> Nec sit terris ultima Thule—

and do not marvel that their strain of glowing conviction should have led Columbus to write them out twice over in his "Profecias." But all the same, this New World lay shrouded in the obscurity of the great Sea of Darkness, cut off, as we have since learned, from the known inhabited world, by changes wrought in remote geologic eras, and waiting the fullness of time which should lead the inspired genius of Christopher Columbus to seek the east by sailing west. We now know that in his quest of a western passage to Asia he reached the eastern shore of this continent on October 12, 1492, but even to the time of his death, on January 20, 1506, neither did Columbus nor any voyager or writer have any conception of the vastness and real significance of his discovery. All that the geographical knowledge of the day enabled them to grasp was the belief that Columbus had found a

new route to the Indies by sailing west. Within a few years, however, the daring sailors of Spain and Portugal, of Italy and of England, pushed their voyages along the coasts. The astonishing discoveries of Americus Vespucius on his celebrated third voyage in 1501–02, when between Lisbon and the island of South Georgia he traversed an arc of ninety-three degrees, led him to apply for the first time to this continent (it really was South America of which he spoke) the title of New World (Mundus Novus). It concerns us not to consider further how, by no intent or design of Vespucius, portions of South America at first, and later the entire continent, came after his death to be named after him. Yet when a few days ago I held in my hands the little quarto published in 1507, in which Professor Martin Waldseemüller, of the College of Saint Dié, in Lorraine, first suggests the name America, in utter ignorance that the coast explored by Vespucius was continuous with or even related to the land discovered by Columbus, I could not help smiling sadly at the frantic and fruitless efforts we make to secure immortality by our petty observations, while here Fame, in strange whimsey, threw her laurels for the greatest discovery ever made around the head of one who neither had nor preferred a claim to it.

Geology and paleontology have taught us that this so-called New World is in reality, in a scientific sense, better entitled to the name of the Old World. The oldest known strata have their widest development on its surface, and animals, such as the horse, which are said to have been introduced after 1492, are shown to have had their original habitat here and to have migrated hence to Europe, so that Cortes and Pizarro only reintroduced them to their former home. It is more important to recall the fact that the entire stretch of North and South America was, at that date, 1492, peopled more or less thickly with the descendants of tribes who had resided there from very remote antiquity. A high authority assures us that the number of these aborigines was probably from twelve to fifteen millions, and in spite of considerable differences in physical appearance, as between the Iroquois of New York and the Aztecs of Mexico, or the Incas of Peru in dialect and habits, it is generally conceded that this vast aboriginal population of North America and South America alike, with the exception of the Eskimos, belonged to one great race of Red Men.

Eskimos and Red Men alike seem to have migrated to our continent at one time, or more probably in successive waves, in the remote past, either when the northwest corner of America was joined to Siberia by the elevation of the area now known as Behring Sea, or when the lofty submarine ridge which now passes from France to Greenland was elevated so that it would be possible to travel on foot from Europe to America. If the attempt be made to decide at what

period of geologic time such immigration occurred, and whether in one great migration, or, as seems most probable, in successive waves, problems of extreme if not insurmountable difficulty present themselves.

The aborigines who were living on this continent at the time of its discovery by Columbus presented, it is true, considerable differences in the stage of development they had reached, as well as in their language and even in their appearance. There are long intervals of social development evident between the squalid sty of the California savage, the log-house of the Iroquois, and the great structures of the Zuñi, of Tlascala, or of Uxmal. Yet in them all can be demonstrated an underlying principle of adaptation to a certain mode of communal life such as all American aborigines are believed to have practiced. All attempts to distinguish the existence of special races, as of the mound-builders, have broken down in the light of critical study, and the powerful arguments of philology confirm the results of zoölogical study as to the essential unity of the American red race. The tribes in different parts of this vast territory certainly presented marked differences in physical appearance, and our ethnological collections show that as regards size and weight of frame and shape of skull considerable variety existed among them. But all possessed the cinnamon-colored or copper-colored complexion, the high cheek bones and small, deep-set eyes, the straight, black hair, with scanty or absent beard; and the conclusion of the most competent authorities is that no sufficient differences, physical, linguistic, or social, existed to invalidate the evidence in favor of the unity of the race.

Fortunately we are not called on to attempt to read the geological record. For our purpose it is indifferent whether all the relics of the ancient Americans are of the neolithic type, or whether the apparently plausible claim be ultimately established that paleolithic remains are also found in various places. This at least we know, that the soil and climate had shown themselves favorable to the development of a population already numerous, vigorous, hardy, and enduring, and brave and warlike, though often cruel, and evidently advancing in social development, though at very different rates at different localities. Ignorant as we are of their primitive origin, it is doubtful if the most earnest advocate of the monogenist view that all mankind was originally descended from one pair, will urge that our aborigines were descended from a single couple, or even from a few boat-loads of Asiatics accidentally carried to our Pacific Coast, or that we shall hear again the arguments drawn from the many striking resemblances between the myths, languages, customs, or hand-wrought objects of the aboriginal Americans and of various Oriental nations. The sur-

prise which, I am sure, all of us have experienced at these resemblances must be checked by these two thoughts so well expressed by Fiske and by Lubbock respectively, that one of the most important lessons impressed on us by a long study of comparative mythology, is that human minds in different parts of the world, but under the influence of similar circumstances, develop similar ideas and clothe them in similar forms of expression; and, again, that different races in similar stages of development often present more features of resemblance to one another than the same race does to itself in different stages of its history.

An immense amount of sympathy has been expended upon the cruel treatment of the American aborigines by the European invaders. Of course, it was the sad old story, so often repeated, whenever a better armed and more highly civilized power has come into conflict with a primitive, ignorant and ill-armed people. Over the ghastly picture of Indian slavery, one would indeed wish to draw a veil, though its darkest shadows are relieved by the splendor of the character and labors of the illustrious Las Casas, and by the enlightened action of those great men, Emperor Charles V., Pope Paul III., and Cardinal Ximenes. But it is a romantic extravagance to deplore the destruction of any system of government or society which existed in 1492 in any part of the continent. If the present state of the native Indian population in North and South America is far from satisfactory, and fails to fulfill the promise shown, especially in South America during the first century after the conquest, may this not fairly be attributed to unwise legislation by the ruling nations, to the absence of continued, effective religious instruction, and to the base cupidity which has led us to promote the fatal passion for stimulants, so common among barbarous people? There seems no sufficient evidence to make us lose hope that the remains of the aboriginal Americans may, under more wise and equitable treatment, gradually develop into useful citizens of our republics, and be capable of wholesome assimilation with the body of the population.

It is easy to assert and hard to disprove that the development of the Red race on this continent was progressing slowly prior to 1492. As a matter of fact, we do not possess the data, either about their early history or about the primitive condition and rate of development of any of the more civilized races, to permit us to institute a comparison. Our earliest knowledge of the ancient Egyptians, for instance, reveals them living in a state of civilization already advanced at least a full ethnical period beyond that even of the Aztecs. How many centuries had elapsed while the successive stages of savagery and barbarism were passing in Egypt can never be even surmised. There seems no reason to doubt that, had America not yet been discovered, there would have

been going on here for the last four hundred years a slow and irregular approach to a higher social condition. There certainly is no doubt that during and since the conquest many sad mistakes, and not a few atrocious crimes, have been perpetrated in the name of civilization and of liberty. But, on the whole, the student of history is forced to admit the enormous advantages which have resulted from the conquest by Europeans of the fifteenth and sixteenth centuries of tribes the most advanced of which were still in a very primitive state of civilization.

I have ventured upon this rapid sketch of a familiar subject, because it is well that we should be clear in our comprehension of the conditions which existed in America four hundred years ago, when the start was made to introduce the European races and civilizations. We meet here to-day to represent what these have accomplished in their new environment during these four centuries in regard to certain highly important subjects. We cannot fail to be interested in considering what scientific acquisitions in these branches were actually brought here, what disadvantages were to be contended with, how far our progress may be regarded as satisfactory, what great questions there are which concern us all deeply, and in what lines of research and work we may unite for the common good, and for the greater advancement of science.

The words graven on the tomb of Ferdinand Columbus, in the cathedral, at Seville :[1] "To Castille and Leon, Columbus gave a New World," are indeed true, but they do not express the whole truth. John Fiske well says: "The discovery of America may be regarded in one sense as a unique event, but it must likewise be regarded as a long and multifarious process. The unique event was the crossing of the Sea of Darkness, in 1492, and no ingenuity of argument can take from Columbus and from Spain the glory of an achievement which has, and can have, no parallel in the career of mankind. It established a true and permanent contact between the eastern and western halves of our planet, and brought together the two streams of human life that had flowed in separate channels ever since the glacial period." But to demonstrate the magnitude of this discovery, to determine the physical features of this Western Hemisphere, to plant firmly the seeds of European civilization, demanded the heroic exertions of two full centuries. Not Spain alone, but Portugal, Italy, France, England, Holland, Denmark, Russia, played their part, and the names of Cabral and Pinzon and Magellan, of Cortes, Balboa, and Pizarro, of Ponce de Leon and Soto, of Champlain and La Salle, of Drake, Hudson, Baffin, Davis and Bering, must remain associated forever with this stupendous and pro-

[1] Á Castilla y á Leon
Nuevo mundo dió Colon.

gressive work of discovery. Not until 1806 was the last step taken by Lewis and Clark, who then succeeded in crossing the continent of North America from east to west, and thus completed the task undertaken by Champlain in 1608. And if the mere study of the outlines and dimensions of North America occupied two centuries, what are we to say of the far greater obstacles opposed to the colonization of the vast territory, and to the determination and establishment of suitable forms of government, and of harmonious relations between the numerous States and countries into which America soon came to be divided?

The older political systems of Europe seem to require still the assistance of considerable artificial support, and their occasional disturbances are of a decidedly unpleasant character. It is strange that some of us still have our little unpleasantnesses at home, or with our neighbors, which indicate that the education of our people is as yet wofully imperfect in those things that most nearly concern their welfare? Of this, at least, we may be sure, that all that promotes free intercourse among us helps on mightily the solution of these hard problems. It is a true saying that to know is to excuse, and, more than this, in regard to nations if not strictly in regard to individuals, it may be added that to know is to love. We turn with quickened interest to the sage advice of the illustrious Franklin, who, in 1749, embodied in his plan for the organization of the University of Pennsylvania an earnest advocacy of the thorough teaching of the Spanish and Portuguese tongues as likely to hasten the development of those close reciprocal relations which he foresaw would inevitably arise between the countries of the two Americas. The spirit of the age as it embodies itself in our educational systems, and in our literature, the giant forces of steam and electricity, as they link together the most distant points of our territory, are working inevitably together for the enlightenment, the elevation, the better mutual understanding, and the more cordial relations of all of us.

The year whose four hundredth anniversary we now celebrate found the world stirred as never before. A work of tremendous importance for the future of the human race had been going on amid the gloom of what are often called the dark ages. The more closely this period of absorbing interest is studied the more do we appreciate the magnitude and the necessity of the changes effected during those centuries in preparation for the splendid activities of the Renaissance. The mission of the Middle Ages had been really, though not obviously, a cosmopolitan one, and it was fitting that the noblest achievement of the Renaissance should be the discovery of America. The barriers between nations had been lowered, and there had been going on the process of blending and interpretation, which was soon to be

extended to this Western Hemisphere with such large results. The protest against mere dogma in religion and in philosophy ; the revolt against usurped and abused absolutism ; the demand for light and knowledge, and the common rights of humanity, these awakened then to be stifled no more, but to swell forever in larger utterance until they shall, in some yet distant golden time, announce universal liberty under equitable laws and universal peace through arbitration. It is not for us to taunt the glowing expectations of the men of 1492 with their long-postponed fulfillment. It ill becomes us of to-day to speak in other than tones of humility when across the brightest spots of the vaunted civilization of the close of the nineteenth century after Christ there still fall so many dark shadows lingering from the deep medieval night.

How each generation turns aside with the restless impatience of children from the lessons of the past, and shuts its eyes to the truth which inexorable history calmly shows, that long periods of time are required for the accomplishment of each great advance in religious, or political, or social, or scientific truth.

Yet, though we smile somewhat sadly as we read the bursts of enthusiasm so plentiful at that time, we dare not challenge the fitness of that grand name, the Renaissance, to the age which, through its mighty discoveries and the master minds who used them, diffused among the nations the new conceptions of the earth and the skies, of the church and the State. Only the pity of it that such long centuries of travail must ensue between this implanting of the seed of religious and political liberty, and the mature growth for which we still wail.

In no respect may the discovery of America be regarded as the dividing line between the Middle Ages and the Modern Era more truly than in regard to medical science. In spite of the prodigious learning of the most distinguished Arabian and Jewish physicians, such as Avicenna, the Prince of Physicians, of Albucasis, of Avenzoar, the Wise and Illustrious, of Maimonides, their medical science was far too largely speculative and philosophic. Great universities were established, some of which, as those of Bagdad and of Cordova, possessed regal revenues and magnificent libraries. Numerous hospitals were founded, of which the large and wealthy one established at Cairo, in 1283, merits special mention. But the outcome of this long dominion of the Arabs and the Moors, so far as concerns medical science, was merely a marked advance in chemistry and pharmacy, the introduction of many new remedies, and the advocacy of the union of the natural sciences with medicine. Their chemistry was tinctured strongly with alchemy, their clinical teaching was elementary, their diagnosis and treatment lacked the true Hippocratic force and directness.

The endless speculations and metaphysical discussions of the schools had shown that it was not that way true progress lay. Unaided observation had scarcely gone further in 1800 years than the point to which the immortal Hippocrates had carried it. True medical science, which could not progress without precise methods and instruments of precision, was forced to wait until from very different quarters came the development of the natural sciences and the era of exact experimentation which alone rendered them possible. Harvey's immortal discovery of the circulation of the blood was not announced until 1616, and his almost equally important and epoch-making discovery of the origin of the higher animals from the egg was published in 1651; yet it may be safely asserted that the work of this modest and truly scientific Englishman did more to advance medicine than all the labors of all the schools from the days of Hippocrates. Not only were the facts demonstrated of infinite importance, but his method of patient, exact observation and experimentation until the truth was developed by cautious induction marks the introduction of a new era, and stamps Harvey as the father of modern medicine.

Galileo first indicated the use of the thermometer in medicine about 1595. Sagredo, of Venice, improved it in 1613, and Sanctorius, in 1625, urged its importance in the study of disease forcibly, but as yet ineffectually. Just as the astronomer, Galileo, gave us the first rude thermometer, Kepler, another illustrious astronomer, gave, in 1604, the first record of an accurate count of the human pulse. But so slowly did the importance of this datum in the study of disease impress the medical profession that the acute Sydenham, who lived until 1689, nowhere mentions a single pulse count. It is hard to find anything which illustrates better the radical difference between the spirit of mediæval and of modern medicine than the vast mass of obsolete literature upon the pulse, loaded with fanciful speculation and super-refined subtleties of description, and yet wholly deficient in the only features which would give practical value to the study. What progress in exact medicine could be made without chemistry? Yet scarce any development in this branch occurred between the eighth and seventeenth centuries. And it was Boyle, the father of modern chemistry (not born until 1627—died 1691), who first succeeded in freeing from the trammels of alchemy this noble science. Not until the end of the seventeenth century did the value of quantitative analysis begin to be appreciated. Lastly, it was not until 1590 that we hear of the first compound microscope in the hands of Jansen.

Meanwhile the gross superstitions, combined with a blind dependence on the great authorities of antiquity, and especially on Aristotle and Galen, which had so long dominated medical science, yielded

slowly to the growing light of positive knowledge. Fine-spun subtleties, drawn from metaphysical speculation; the fantastic notions of alchemy and astrology; the rank growth of impostures which flourished in the soil of ignorance, and the bigotry which placed every organ under the charge of a special saint and conjoined with every remedy a special form of supplication, still marked medical teaching and medical practice. But the bold, fearless, investigating spirit of the sixteenth century did its work for medicine as it did for other great matters. Vesalius (1514–1564) and his contemporaries created accurate anatomy. Paré (1509–1590) stamped imperishably on surgery the influence of his genius and lofty character. Paracelsus (1493–1541) hurled the shafts of ridicule and invective against the grovelling subserviency to ancient authority, and did a rough but important stroke of work toward the emancipation of the medical mind. The grand old Hippocratic method of careful observation and cautious reasoning was reasserted, the unproductive philosophy of Galen and his Arabian worshippers was discarded, and at last there begins to emerge from the darkness of so many centuries modern medicine, the medicine of loyalty to nature and revolt against mere human authority; of reverent skepticism and reasonable faith; the medicine of scientific experimentation and of humane vivisection, that insists upon knowing the causes of disease and that looks to Hygiene as its noblest expression.

The history of European medicine for more than three hundred years is a record of which we may well be proud, when the enormous obstacles to progress are held in view. It is not necessary to remind this audience of a single one of its great triumphs. Vesalius and Paré, Harvey and Sydenham, connect themselves with Bichat and Laennec, and Hunter and Jenner, and Pasteur and Lister, and Virchow and Koch, and the torch of genius is passed down the line of these immortals and lights up the ages with the splendor of their achievements. But it is sad to reflect upon what has been done as contrasted with what might have been. The dense ignorance of rulers and masses on scientific questions, the slow progress of sound, useful education among the people, the huge claims of imperialism and militarism, the wanton waste of luxury, have retarded research, have left but paltry sums available for the diffusion of knowledge, have hindered the embodiment in legislation and in actuality of much that would help the healing of the nations. It is an odd commentary on the vaunted civilization of to-day to contrast the sums doled out by the most enlightened governments of Europe for the promotion of higher education and original research or for the suppression of preventable diseases, with those lavished on the vast hosts of armed men and the huge fleets of unwieldy armored ships deemed necessary for the maintainance of peace and order.

Within our own day we have seen the announcement of the grandest generalization reached by the human mind, in this century at least, and advanced in the most philosophic and inoffensive manner, received with a burst of intellectual skepticism and religious intolerance, which showed that the old forces against which the Renaissance protested, and still protests, are yet alive, though happily shorn of most of their power. The marvelously rapid spread of the illuminating doctrines of Darwin, and their incorporation in the thought and speech of the world, and in the teachings of the churches, may indeed be pointed to as the crowning intellectual achievement of the nineteenth century.

If the actual progress of medical science was slow in Europe during the years which followed that *annus mirabilis*, 1492, surely no word of reproach may be uttered against the early settlers in North and South America, because, amidst their heroic efforts to conquer this vast continent, it was long before they found time or energy to devote to the cultivation of that practical and essential subject of medical science. It is true that in 1551 Charles V. founded the University of Lima, in Peru, and in 1553 the University of Mexico. Yet it does not appear that medicine was taught at these universities until a little prior to 1700.

In North America, although Harvard College was founded in 1636, the title of university seems to have first been applied to the University of Pennsylvania, which in 1765 established the first school of medicine in the United States. The scattered handfuls of early settlers on our shores had, indeed, problems facing them more urgent than the promotion of science. They differed as widely in their motives for undertaking the appalling task of conquering and colonizing America, and in their fitness for the work, as they did in their nationalities. Separated widely from the mother countries, hampered very often by unwise and vexatious interference from the home governments, they waged war against the powerful tribes of aborigines who swarmed over the country, and against the no less serious obstacles of untried climatic and political conditions. Bloody warfare raged promiscuously, and disease was rife. We have seen that the work of mere preliminary exploration occupied two centuries. The close of the third century found the early struggles approaching a successful ending, only to be followed by violent political changes, not accomplished save by long and costly wars. The English conquest of Canada in 1759–60, the achievement of independence by the United States in 1783, the establishment of the independence of the South American Republics in 1810 and the ensuing twenty years—these are the events from which the future historian will date the Renaissance

or the Decadence in America, and to which reference will always be made in estimating our capacity for progress in politics, it literature, in art and in science.

For a long time it seemed even to friendly critics that the new races which strove for a foothold on American soil were unlikely to thrive as vigorously as in their accustomed habitats; and the impossibility of developing a genuine and lasting American type was freely asserted. To those of us who have considered this point with anxious care the last two decades have brought results that put to rest all apprehension. Whatever may be the future changes in the political organization or relations of the countries composing America, it is a demonstrated fact that the European race in America, which already numbers over one hundred millions, will show no decline in vigor or in energy, in physical or in mental strength. It is not on account of mere bigness in material achievement that we point to the millions who fought in the great civil war; or to the one hundred and seventy thousand miles of railroad in the United States—almost as much as in all the world besides, and the $10,000,000,000 of capital invested, and the army of nine hundred thousand employees; or to that tremendous structure, the Canadian Pacific Railroad; or to the plans now under consideration for developing a continuous railway system for the entire continent, from Montreal or Puget's Sound to Buenos Ayres. It is, even more, as evidences of large imagination, of courageous resolution and dauntless tenacity of purpose, and of enormous power of physical endurance that we value the enterprises which have subjugated this continent so swiftly and are hastening its commercial consolidation. We may be assured that countries which we have shown such sturdy love of independence and resistance to outside interference, which have displayed so much sagacity in adaping their political constitutions to their peculiar conditions, which liberate and enfranchise all who dwell within their limits and afford to all an equal chance of advancement, will work out their destinies to far larger and wiser plans of friendly co-operation than we can now foresee.

Turgot, in his memorable address in the Sorbonne, well declared, "Tous les ages sont enchainés par une suite de causes et d'effets qui lient l'état du monde à tous ceux que l'ont précédé." The discovery of America depended on the operation of causes which can be traced back many centuries. The present condition of our continent, four hundred years later, is the result of the action and reaction of mighty movements which involve every country of the world. Here is the new and probably the last great place of gathering and intermixture of all nations. Here as nowhere else are to be studied with all the aids of exact science the problems of ethnology and sociology. Here are to

be worked out to the best advantage the problems concerning the relations of man to his physical environment; and the demonstration that in spite of the apparent magnitude of the powers of nature, and in spite of the admitted influence of climate and physical condition upon the progress of civilization, the powers of man for intellectual and social advancement are incalculably superior.

In all of this work a large share must devolve upon medical men, and fortunately our position in America is one which will enable us to work together with good effect. The high average intelligence of our people will make them prompt to appreciate results of solid utility or scientific value. The enormous wealth, present and prospective, of this continent should readily be diverted more and more bountifully to the promotion of learning and research—if, as may be trusted, we shall strive more and more after peace among ourselves and abroad.

We shall never cease to be proud of our lineage, or to acknowledge the immense debt we owe to Europe. Its languages are ours; its glorious past is part of our heritage; its mighty names in art and philosophy and science are household words with us. Its rapidly advancing civilization incites us to loftier efforts. But the balance between the Old and the New World is being redressed.

All know how the examples of our young and vigorous communities have supplied and fed the infectious principles of political liberty and of social equality. In every struggle for the rights of man, from the terrible but beneficent drama of the French Revolution down to the present hour, our example and our assistance have been invoked.

I cannot detain you by an enumeration of the services already rendered by America to medical science. Almost immediately after the discovery important contributions to pharmacology were announced, chiefly from South America, and from the introduction of guaiacum, in 1508, until now these contributions have become more and more frequent. The entire medical world was agitated during the latter half of the seventeenth century by the struggle over the merits of cinchona bark, introduced into Europe, in 1640, by Juan del Vego, and no more convincing tribute can be adduced as to the value of medical and sanitary science than the prominent place occupied by malarial diseases in the general and medical literature of the seventeenth and eighteenth centuries as contrasted with the feeling of impunity with which they are now regarded. Among the results which may be anticipated from this meeting is, I trust, the adoption of some well-considered plan for systematic conjoint study of our American remedies and their pharmaceutical preparations, looking to their scientific classification, to greater uniformity in their preparation, and ultimately to a single pharmacopœia for the entire continent.

The introduction of nitrous oxide (1844) and of ether (1846) into medical practice, with which the names of Wells and of Morton are so honorably connected; the establishment of the operation of ovariotomy by McDowell, of Kentucky, upon a secure scientific basis—these and hundreds of other achievements of lesser brilliance are too familiar to need mention. Every one knows now how superfluous it is to say a word in defense of American literature, and certainly we who know how powerfully the opinions and practice of medical men in Europe and throughout the world are influenced by American writings may view our position with some complacency. Yet a survey of what America is actually contributing to medical literature shows clearly how far we are behind the nations which lead in medical thought. In the year 1879 Rupprecht's Bibliotheca gave as the total number of new medical books, excluding pamphlets, periodicals, and transactions, 419, divided as follows, viz.: France, 187; Germany, 110; England, 43; Italy, 32; United States, 21; all others, 26; and for 1891 I find the same Bibliotheca gives the total number as 1063, divided as follows, viz.: Germany, 360; France, 243; Great Britain, 141; United States, 80; Italy, 78, Austro-Hungary, 70; Spain, 24; other countries (chiefly Switzerland and Denmark), 67.

On the other hand, in the more ephemeral forms of medical literature the figures are very different. I have had a careful count made of the volumes of medical journals and transactions filed in the library of the Army Medical Museum at Washington with their respective places of publication, and from this it is clear that of these classes of medical literature there were in 1890 and in 1891 published in America (including Canada, the United States, and Latin-America) about twice as many volumes as in Germany or France, and fully three times as many as in Great Britain.

Of course we must not forget the fact that in the hurry of our life of to-day many observations and investigations of great value are published in journals, instead of being reserved to become a part of more serious and complete volumes. But it will not be doubted, I think, that the great excess of medical journals in America, as contrasted with the comparatively small number of medical works, is entirely consistent with the admitted leadership of Germany, France, and Great Britain in medical science. The fact that during the past twelve years Germany has risen from a place in this list second to France, 110 as against 187 in 1879, to the first place at present, with 360 new medical works in 1891 as against 243 published in France, speaks eloquently of the strenuous efforts with which newly-united Germany is straining forward in science as in other fields. The truth is that the apparently extraordinary number of medical journals in America is due chiefly to

a substantial reason, and one which influences equally the existence of very numerous medical schools and medical societies. The vast extent of territory, and the relatively sparse population render it impossible to serve the country with as low an average of medical men, schools, societies or journals as is possible in more densely-populated countries. As to other and less satisfactory reasons which have operated, especially in the United States, to produce a great growth of ill-equipped medical schools and of poorly-supported medical journals it is not necessary to speak here. Indeed, the rapid rise in the standard of scientific requirements, both of medical men and medical literature, and the increasing appreciation on all sides of the fact that the higher medical education is the true interest both of the profession and of the public is accomplishing the much-needed work of checking the ill-considered establishment of new medical enterprises, and of stimulating those in existence to more earnest life and more lofty aims.

So true is this in regard to our medical journals in particular, that no one who has occasion to consult regularly the files of any number of them can fail to have been struck forcibly with the steady and decided improvement in the tone of their management and in the scientific quality of their contents.

This Congress meets at a period of peculiar and critical interest in medical education, and I am glad to say that for the first time in the medical history of the United States we may feel proud to have such a meeting convened here, and to invite a close examination of our educational standards and facilities. I should fail in courtesy and in candor alike were I not to acknowledge the great value of the example which has been so consistently set by Latin-America and by Canada in the maintainance of a high standard of qualifications for medical practitioners.

Fifteen years ago the medical profession of the United States arraigned severely the management of their over-numerous medical schools.[1] While Canada then exacted a reasonably strict entrance examination and a course of medical study extending over four years, with one session of six months in each year, and while every country in Latin-America exacted a collegiate degree or a rigid entrance examination, and a course of medical study extending over six years, it was the general custom with the medical schools of the United States to grant a diploma conveying the full right to practice medicine to applicants who had been admitted without preliminary examination, and had attended without term examinations two courses of lectures covering about five months, and had passed a single and final examination conducted by their own teachers, whose emoluments were derived solely

[1] Regular schools, 65; Homeopathic, 11; Eclectic, 4; total, 80, in 1877.

from the fees of such students. This discreditable prostitution of a great educational trust had been gradually brought about by large causes upon which I may not now comment. But it is with justifiable pride that we may point to the admirable and sweeping reforms that have since been instituted. It remains true that the laws of many of the States allow charters for medical schools to be secured without any guarantee of the standard of education that shall be maintained. But the awakened sentiment of the profession and of the community has in a rapidly increasing number of the States insisted that medical graduates before being admitted to practice shall pass a State examination conducted by an impartial board of examiners appointed by the Governor. The medical schools, to their honor be it proclaimed, have, with few exceptions, been foremost in the struggle to secure this wise and beneficent legislation. They have done much more. In advance of these laws, which will insure a far higher standard of medical qualification in the States fortunate enough to be so protected, the faculties of a number of the leading schools have forced their standard up at first to three years of obligatory study, and now to four years of eight months' study each, with a carefully graded curriculum and with strict examinations before entrance, at the close of each term, and finally before graduation.

When we recall that this has been done without the slightest governmental aid, and, further, that owing to the prevalent view that medical schools have been sources of large profit to their faculties the streams of private benefaction had not yet been directed in their favor, you will appreciate the high sense of duty and the devotion to science which have led these faculties to assume greatly increased labors with an expectation of considerably diminished remuneration owing to reduced attendance of students and to augmented expenditures.

The Committee of Arrangements of this Congress has wisely provided for a tour of inspection of some of these institutions. It is trusted that all of our foreign delegates, and as many as possible of the members of this Congress, will avail themselves of this opportunity to examine the equipment of some of our leading medical schools. They will be gratified to find, in hospitals, in laboratories, and in libraries and museums alike, facilities which bear comparison with those of Europe. They will find an arrangement of studies, and, above all, an organization for the conduct of daily thorough bedside instruction in all branches of medicine, which leave little to be desired. It is easy to foresee, as another of the desirable results of such meetings as this held successively in various parts of America, such increased acquaintance with and confidence in our respective methods of medical education

and medical treatment as will retain on our continent many of our students and many of our invalids who have been in the habit of going farther to fare no better.

A broad field opens before us for the study, with the aid of collective investigation, of the distribution and course of phthisis and rheumatism and other important diseases as influenced by race and locality. The endemic fevers, other than malarial and typhoid and yellow fever, which are said to prevail in various parts of North and South America, have long demanded systematic investigation to complete the study which the illustrious Drake began. We shall now have the opportunity of studying, equally by means of collective investigation, the relative effects of various climates on the numerous races now represented in America, and of determining more accurately the scientific and practical questions connected with our extensive series of health resorts which embrace the finest examples of every type. There are, indeed, none of the sections provided for in this Congress from whose work more valuable results should follow than from those on medical pedagogics, on hygiene and climatology, and on quarantine. It was a sense of the urgent importance of these latter subjects, especially at the present time, and of the valuable results sure to follow their consideration by such a body as this, which led the Government of the United States to extend the cordial invitation which has been uniformly accepted on the part of the Pan-American Governments. I feel that by this action there has been secured for the subject of Hygiene and State Preventive Medicine a formal recognition never before accorded on this continent, and one which must surely be followed by the willingness of the respective governments to use their influence to secure the enactment and efficient administration of proper legislation in accordance with the recommendations of this body of eminent experts.

When the International Medical Congress met in Philadelphia in 1875, the address on Hygiene and Preventive Medicine, delivered by the distinguished Bowditch, himself a pioneer in sanitary science, was one of the most impressive utterances on that important occasion. The review there given of the work of the previous century in this country in sanitary science was not flattering, but with the fine enthusiasm which marked that gifted man he predicted the immediate opening of the grandest epoch yet seen in the history of medicine. His closing appeal must be quoted: "Our PRESENT DUTY is organization, National, State, municipal, and village. From the highest place in the national council down to the smallest village board of health we need organization. With these organizations we can study and often prevent disease." These stirring words were in accord with the spirit of the

times and with the developments of science. When the brilliant discoveries of Koch brought to light the specific bacillus of tuberculosis and of cholera, and pointed out the scientific method to be pursued in similar investigations in the future, an unanswerable argument was provided against skepticism or indifferentism or official penuriousness. It required courage and showed rare breadth of view in Lord Palmerston to issue his celebrated reply to the Presbytery of Edinburgh on the occasion of the threatened outbreak of cholera in 1853, in which he urged that the weal or woe of mankind so far depends upon the observance or neglect of the natural laws by which the affairs of the world are regulated, that if the local causes of disease were not removed before the return of the hot weather, the pestilence would be sure to return in spite of all the prayers and fastings of a united but inactive nation.

Much was accomplished, it is true, in preventive medicine between 1853 and 1876, when Bowditch spoke; but it is scarcely an exaggeration to say that the progress in the past twenty years has been greater than in the preceding twenty centuries. We have not, indeed, yet detected the specific poison of every infectious disease; even in regard to the familiar and much studied yellow fever, the latest publication of the distinguished Surgeon-General of the United States Army shows that this point is still unsettled. But the position of the whole matter is changed radically. Hypotheses have given way to facts. Every one now knows, or ought to know, that the most dreadful diseases are inseparably connected with definite organisms, that these organisms have special laws of development and distribution, that to destroy or exclude them is to avoid the disease, and that to tolerate conditions which favor their development is to encourage and invite the attack of the disease. When these simple, demonstrable propositions are considered in connection with such scourges as cholera and yellow fever, and typhus and typhoid fever, and scarlatina and diphtheria, and epidemic meningitis, it needs no further argument to prove the value and the necessity of quarantine, and of efficient medical inspection and protection. Nor does it need further argument to show the wisdom of establishing laboratories of hygiene at many points over the country, of equipping them amply with the ablest men and the finest apparatus, and of endowing them liberally, so that the search after the yet unknown causes of disease, and after the best methods to prevent the development of such causes as are known, may be prosecuted with ceaseless vigor.

It is easy now to get a hearing for these views, when public comfort is disturbed, the public purse threatened and the public conscience

awake and sensitive. At this moment our great commercial communities are reposing in confidence upon the sanitary measures adopted by our governments, in accordance with medical advice, for the restriction and exclusion of two dreaded pestilences, cholera and yellow fever. Recall with me the popular terror of last summer. Recall the hideous loss of life and the disastrous effects on commerce caused by former invasions of these diseases when the communities afflicted were smaller and less wealthy than are ours at present. We do not have to seek back to the Middle Ages for pictures of desolation wrought by infectious disease. Recall that tragic story of the great yellow fever epidemic in Philadelphia just one hundred years ago, as told by Rush. Try to estimate the result if cholera had effected a lodgment in New York City in July, 1892, and, having found favoring local and climatic conditions, had, as on former occasions, spread its deadly germs to the North and South and West. The fair White City that was rising by that distant lake, under the magic wands of Art and Industry, would have been stricken with a fatal blow. No computation can well exceed the loss that would have fallen on this country. The entire people gazed with bated breath at the struggle waging in New York Harbor, and universal thanksgiving arose when the dread invader was finally repulsed by the vigorous and sustained efforts of the sanitary authorities. That we in America are not to-day witnessing the aggravated recurrence of the epidemic, in accordance with unvarying precedent, can be due only to the continuance of these same efforts, reinforced with large authority and aided by more efficient local sanitation. When this gratifying result is associated with the success which for some years has attended our efforts for the exclusion of yellow fever, no further argument can be needed to urge the adoption of such uniform measures as will for the future afford most sure protection against these diseases. These instances exhibit in the most striking manner the need and the value of the international sanitary agreements this Congress may do much to promote. But there will occur to all of us many other important questions to be solved only by earnest and united work. Nor can this work be accomplished until Bowditch's cry for organization is far more fully answered than it yet has been. Nothing but organization and co-operation, and, yet more, the establishment in the government of every civilized nation of a department of public health, will secure the continuous and forcible atttention which the magnitude of this enterprise demands. There should be, and the day cannot be far distant when there shall be, in the cabinet of every government here represented, a secretary of public health, of rank, influence and prerogative equal to that of any other cabinet officer.

Here, then, is the last and greatest service to be rendered to science and to the nation by our Congress. Our combined influence will be irresistible when used in advocacy of higher education; in carrying out large plans for the scientific study of our national life, as affected by social and climatic influences; in the adoption of remedies and remedial measures of demonstrated merit, and in the insistance upon a fuller recognition of the lofty function of preventive medicine. "Salus Sanitasque Reipublicæ, suprema lex." Let us acquire here a closer touch with each other, a deeper faith in our profession and its noble destiny, and a stronger determination to labor in brotherly co-operation for the loftiest ideals of service to science and the race.

A CASE OF TUMOR OF THE OPTIC THALAMUS.

By Wharton Sinkler, M.D.,
Philadelphia.

Miss A., aged 46 years, had always enjoyed excellent health and had been of a cheerful and even temperament. Menstruation has been regular and painless until within the past year, when the flow has been excessive.

In January, 1893, the family thought that she was rather dull and took less interest in things than usual, but at the time this attracted but little attention. The end of March, just after returning from a trip to Cuba, it was noticed that there was a marked tendency in the patient to be gloomy and morbid in her expressions, and she seemed to be indifferent to many things which had formerly interested her. Her manner became listless and there was a constant desire to lie down and sleep. The sleep was not light or natural, but was very heavy and deep and lasted for four or five hours at a time during the day. She complained at this time of a great deal of difficulty of vision, and went to Dr. Risley for a change in her glasses. He kindly sent me the following report:

"Miss A. came to me on March 22, complaining of the recent rapid increase of her myopia, but said that she had no pain in eyes or head. She said that she had formerly suffered much from headache, but not of late, and was able to use her eyes with impunity until quite recently, and then found fatigue only after prolonged use. She complained only of her dim distant vision. With a carefully selected glass vision was one-half in each eye. The note made is as follows:

"The anterior sclera is thin, perforating vessels distended, but the ophthalmoscope shows only a small crescent at the temporal margin of both nerves and the posterior part of the eye-ground not in bad condition. Range of accommodation normal and no marked want of muscular balance.

"She received a mydriatic which was used until the twenty-ninth, when her correcting glasses were ordered, the vision having risen to normal in each eye. I had observed at the first visit an unusual slowness of speech and hesitation in calling the test letters, but not being familiar with the patient thought it possibly characteristic, as she was sluggish in all her movements, sank deeply into her chair and replied slowly to questions. In one week she returned for a reading glass, complained of some confusion of sight and that she was not feeling well. The disturbance of vision was apparently due to some hyperphoria, but it was variable and uncertain, and her vision was not quite as good as when the glasses had been ordered one week before. The field for form was normal, color field not taken. The ophthalmoscope revealed no change in the eye-ground.

"In about ten days she returned, when I was much struck by the evident rapid failure in her health, and I found that vision had sunk to one-half again, but the ophthalmoscope revealed no visible change in the fundus. It was now plain that the mental sluggishness had increased, she was a trifle petulant and seemed averse to any effort, even to reading the test letters. She seemed to be hysterical."

She was disinclined to talk, and was averse to giving an account as to how things appeared to her. The listlessness and apathy increased from day to day, and about the middle of April the expression of face began to show marked change and became vacant. About this time there was slight aphasia, which was only noticeable, however, to those who were constantly with her. The aphasia was not marked, and consisted merely in the occasional miscalling of a word. After a period of somnolence, which lasted two or three weeks, there came a tendency to restlessness. She walked up and down the room a great deal and seemed slightly unsteady in her gait, occasionally taking hold of the back of a chair to support herself. When asked why she walked so much, she said that her legs felt weak and as if they would give way, and she thought that exercise would strengthen the limbs.

The next symptom observed was paresis of the right side of the face, the left corner of the mouth being drawn up in smiling and talking. Her hands seemed unable to guide themselves; for instance, she would have difficulty in lifting a cup directly to her mouth, and the incoördination was rather greater in the right hand than in the left.

She had always been somewhat left-handed, but it now became noticeable to her friends that she used the left hand much more frequently than formerly. The use of her fingers became awkward and feeble. She could scarcely button her gloves, or even draw on the fingers, and in all small movements she showed a feebleness of the hands; for example, she could play a good game of cards, but could not shuffle the cards, and if they dropped out of her hands she either did not see them, or else made no effort to gather them up. There were never any choreic movements. The general health was fairly good, the appetite was good—if anything, unusually large for her. She sometimes complained of headache, but there was no constant headache and the pain did not appear to be very severe.

About May 1, Dr. Goodell made an examination with the view of determining the reason for the menorrhagia which had existed for several months. He found that there was a small fibroid of the uterus, but discovered no other abnormal condition. On the day that she visited Dr. Goodell's office, which was the last time that she was out, she walked several squares going to and from his office. She had insisted on walking, as she thought she would prefer it. She walked, however, with great difficulty, her gait was very slow and feeble, and she staggered so much that she had to lean heavily upon the arm of the person who was with her to keep herself from falling.

I examined Miss A. on May 4, 1893, and found a well-developed healthy-looking woman. She was dull and hard to arouse. It was difficult to get her attention, and she answered questions slowly and with apparent indifference. There was generally a long interval between the question and answer and the replies seemed to be made at random. She said that she had pain in the head, and placed her hand on the forehead to show where the pain was. At times the pain seemed intense. There was marked paresis of the right side of the face, which was more apparent when the patient smiled. The right eye, however, could be fully closed. Sensation was impaired on the right side of the face, but was not lost. The point of a pin could not be distinguished from the head, but localization was good. The tongue was protruded straight. The grasp of the right hand was almost equal to that of the left. Sensation in the hand and arm was not affected. There was some awkwardness in the use of the hand, and the patient kept moving the fingers as if they felt unnatural, but she could not be made to say that there was any unusual feeling in them.

She moved the legs freely in every direction and felt and localized touch in them, but in attempting to walk staggered considerably and

would have fallen if she had not been supported. The knee-jerks were exaggerated, but there was no ankle clonus. The patient slept heavily a large part of the time and was difficult to arouse; but at times was extremely restless.

The bowels were regular and the urine passed as usual. The urine contained no albumin or sugar.

The appetite was large, almost voracious, and there was no nausea or vomiting. The temperature was normal, or subnormal, at times as low as 97°, and the pulse slow, varying from fifty-six to seventy beats in the minute.

Dr. Risley made another examination of the eyes about May 10, and found that the fundus was normal in both eyes. There was no nystagmus, and the pupils responded to light and accommodation.

The symptoms gradually increased in severity. The somnolence grew deeper and the difficulty in the use of the right arm increased. There was marked incoördination in the use of the hand, and at times the fingers were in positions somewhat like those of athetosis. At times there appeared to be complete paralysis of the extensors of the hand with contraction of the flexors, and this condition would pass away. Later the right leg became helpless, and at intervals there was loss of voluntary power to move it. As the patient became worse there were involuntary discharges from the bladder and bowels. She very gradually sank, and, after being in a completely comatose condition for three days, died. Three days before death the temperature rose to 103° and rapidly went up, reaching 107° before death.

There was at no time any convulsive movements, either local or general.

There were several points of interest in the case. First, as to whether the condition of the patient was due to hysteria, or to organic disease of the brain. The gynecologist who examined her a few days before I first saw her, thought that she was suffering from hysteria, and when I made my first visit there were many features which looked like hysteria. She seemed to assume some of her symptoms.

It was evident after a careful examination that there was a gross brain lesion and the indications pointed to a growth, the entire absence of fever being against the probability of abscess. The question of localization of the tumor was the next question of importance. From the fact that one of the early symptoms had been slight aphasia followed by facial paresis, and later incomplete loss of power in the arm and leg with symptoms of intracranial pressure, as shown by somnolence and pain, it seemed probable that the growth was located in the left frontal lobe, and that it had gradually encroached upon the motor region. In

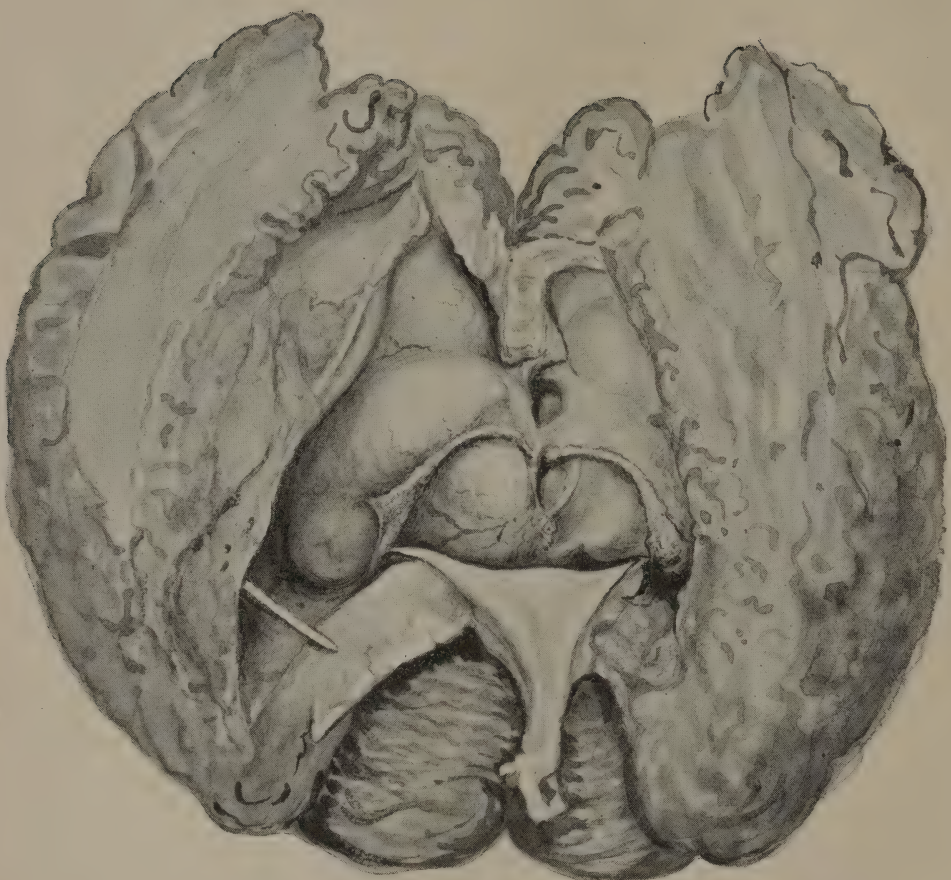

FIG. 1.—TUMOR OF THE OPTIC THALAMUS.

Brain with ventricles opened, exposing enlarged left optic thalamus.

this view Dr. H. C. Wood, who saw the case with me, concurred. Another point which naturally came up was the question of operation, and the family having seen a paper on brain surgery, by a prominent surgeon, in one of the popular magazines, were very urgent that an operation should be attempted. The patient's general condition and the probable location of the growth, made any interference of this kind seem inadvisable, and we decided against operation.

The sequel shows how well it was that no operation was attempted.

The autopsy was made twenty-four hours after death by Dr. C. H. Burr. The head only was examined. The skull was of normal thickness and the membranes were free from disease or hyperemia. The surface of the brain showed no unusual appearance, and on making horizontal sections through the organ there was no unusual vascularity or areas of softening. On opening the ventricles only a small amount of cerebro-spinal fluid flowed out. When the basal ganglia were exposed it was seen that on the left side the optic thalamus was a large as a hen's egg, the enlargement extending in all directions and involving the posterior part of the corpus striatum. The surface was smooth and covered with numerous large vessels. The consistency was firm and elastic. The appearance of the growth is shown admirably in the accompanying drawing, which was made from the fresh specimen by Dr. J. M. Taylor.

Figure 2, drawn by Dr. A. A. Stevens, shows the appearance on vertical longitudinal section of the basal ganglia. The caudate nucleus and the lenticular nucleus are not at all involved. The internal capsule is involved only from pressure. On microscopic examination the growth proves to be a fibroglioma.

The functions of the optic thalamus are so little understood, that the study of any cases in which this body is found to be exclusively involved, or even to a large extent the seat of disease, is of importance.

Dana[1] says that lesions of the posterior part of the thalamus will produce partial blindness. "Aside from disturbances of vision, the optic thalamus also must be considered clinically a latent region."

Gray,[2] referring to lesions of this body, asserts that "these can not be diagnosed."

Gowers,[3] however, goes at some length into the symptoms which have been observed in connection with diseases of the thalamus. He states that slight hemiplegia has been observed when the disease has been near the middle third of the thalamus; and that also when this portion is involved, mobile spasm is liable to exist on the opposite side

[1] Text Book of Nervous Diseases, p. 232.
[2] Nervous Diseases, p. 126.
[3] Diseases of the Nervous System p. 714.

of the body, chiefly in the hand. He observes that as to sensory changes, "these do not exist when the disease is limited to the thalamus, but that hemianesthesia occurs when the lesion has extended to the internal capsule outside of the pulvinar; and that in such cases, there may also be hemianopsia." He also believes that this symptom may be caused by disease limited to the posterior part of the thalamus. In the case which I shall report, hemianopsia was not present.

Meynert thought that muscular sensibility is affected by disease of the thalamus.

Within the past few years a number of cases have been recorded in which, post-mortem, the thalamus has been found diseased, but the symptoms have varied greatly. Of course, the lack of uniformity in the symptoms depends on the involvement of parts adjacent to the thalamus and of necessity, it can occur but rarely, that the thalamus is the exclusive seat of disease. Lesions of the thalamus frequently extend into the internal capsule or into the pons and thus give rise to symptoms characteristic of disease of these parts.

Ott has made some interesting observations in regard to the thalamus as a heat centre. His experiments on rabbits showed that irritation of the anterior and inner portion of the thalamus caused marked rise in the temperature of the animal. His observations have been confirmed by other observers. In this connection it is interesting to note that in the case which I shall relate later, the temperature at first was subnormal, and before death became enormously elevated.

Lloyd[1] has reported a case in which there was a glioma of the left optic thalamus, but also involving the mid-brain adjacent. In this patient there was brachial and crural monoplegia, with paralysis of the left third nerve. There was intense hebetude, so that the examination of the sensory conditions was unsatisfactory; but it is stated that there was no apparent anesthesia, and that there was an active reflex to sensory irritation.

Dercum[2] has also made some interesting observations on a case of tumor of the thalamus. In this case the tumor involved principally the pulvinar, but to some extent the caudate nucleus, and there was some evidence of pressure upon the posterior third of the interior capsule. The patient had hemianopsia, loss of vision, and the Wernicke pupillary reaction, but no optic neuritis. There was complete hemiplegia and hemianesthesia on the side opposite the lesion. In the early history of the case there were athetoid movements of the right arm.

[1] Journal of Nervous and Mental Diseases, December, 1891.
[2] Journal of Nervous and Mental Diseases, August, 1890.

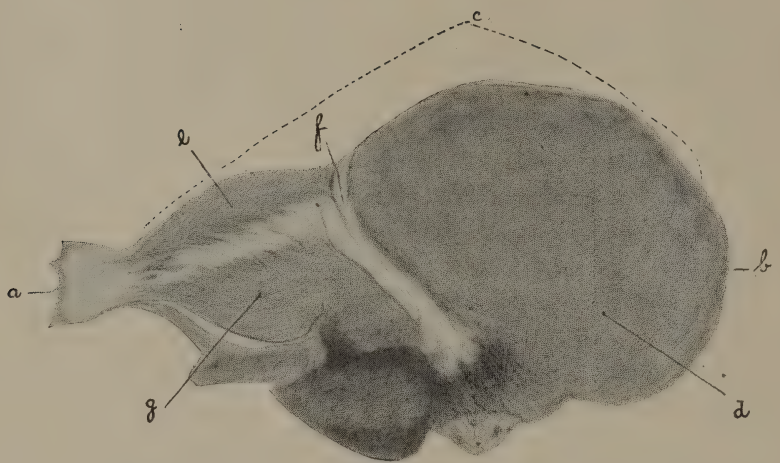

FIG. 2.--LONGITUDINAL VERTICAL SECTION OF LEFT BASAL GANGLIA.

a, Anterior pole; *b*, posterior pole; *c*, floor of lateral ventricle; *d*, optic thalamus; *e*, caudate nucleus; *f*, knee of internal capsule; *g*, lenticular nucleus.

Dr. Robert T. Edes[1] relates a case of tumor of the thalamus. The patient, a man of 42, had shown symptoms of brain disease for a period covering six months. At the autopsy nearly the whole left thalamus was found involved by the growth. The caudate nucleus was pushed forward by it, and the hippocampus was also compressed, but was not involved. The posterior part of the posterior limb of the internal capsule, however, was invaded by the growth. The tumor was a gliosarcoma. The prominent symptoms presented by the patient were a sense of numbness and heaviness of the right side, with anesthesia later in the history of the case. There was slight paralysis of the left side of the face and body, but this was somewhat intermittent. There was headache and dullness of the mental faculties, persistent vomiting, and one or two attacks of unconsciousness. Sleepiness and stupor were conspicuous symptoms. There was some diplopia, but no optic neuritis, and the fields could not be determined owing to the patient's mental condition, but vision seemed normal. Pupils reacted equally to light. There was some forgetfulness of names, but no actual aphasia. There were no choreic movements.

The writer gives brief histories of nine cases which he has collected, in which there was tumor of the optic thalamus. In these there was no uniformity of symptoms, but the symptoms most commonly observed were somnolence and impaired sensibility, and paresis on the side opposite that on which the tumor was found. Disturbance of vision was noted in a comparatively small proportion of these cases. It must be stated, however, that in most of the cases quoted there was more or less involvement of the lateral capsule and corpora quadragemina, and hence the symptoms of paresis and hemianesthesia may be ascribed to the lesion of the internal capsule.

[1] Medical Record, May 24, 1890.

FOREIGN BODIES WITHIN THE EYE-BALL.[1]

By Edward Jackson, A.M., M.D.,

Professor of Diseases of the Eye in the Philadelphia Polyclinic and Surgeon to Wills' Eye Hospital, etc.

Two of the cases we have before us to-day illustrate the serious results arising from the presence of a foreign body within the eye-ball. The accident of its lodgment there frequently gives rise to no pain, and, as in both of these cases, at first to no interference with vision. The patient is inclined to regard it as a slight matter; not attaching nearly as much importance to the occurrence as he would to the lodging of a foreign body in the cornea, or upon the conjunctiva, where by its scratching, it might cause great temporary inconvenience. And the physician applied to, if not thoroughly familiar with the disastrous effects of such an injury, is very liable to give too favorable a prognosis.

The course that the case will run and the treatment required will vary with the part of the eye in which the foreign body is lodged, as our cases will illustrate, but in general, any wound, however slight, accompanied with the lodgment of a foreign body within the eye-ball, must be regarded as more serious than the most extensive wound, that does not totally destroy vision, without the lodgment of a foreign body in the eye-ball.

Case I.—This patient, W. J., came to the hospital three months ago, saying, that the night before he had been struck in the left eye by a chip of iron. The vision was five-fifths, partly in each eye. There was a moderate conjunctivitis of the left eye and a slight scar of the conjunctiva of the lower outer quadrant of the eye-ball about 5 millimetres from the corneal margin. From the appearance of this wound, it was thought the chip of iron had not penetrated the sclera.

The ophthalmoscopic examination, however, showed whitish masses scattered in the lower, outer, anterior portion of the vitreous; the anterior retina in this direction was detached. There had been a slight hemorrhage into the vitreous, and just back of it appeared a mass of iron partly protruding through the retina. Although the immediate removal of the foreign body was strongly urged, the patient refused to have it done.

Two days later he returned with the lids greatly swollen, marked chemosis of the conjunctiva, and the cornea and posterior media hazy. At this time, his vision had fallen to light perception with the injured eye. I used the magnet, and with some difficulty removed the bit of iron, which seemed to have considerably changed its position, the media at that time being too cloudy to see it. The eye gradually became free from irritation, but light perception was lost.

To-day you notice the light yellow appearance in the pupil, but

[1] Clinical lecture at Wills' Eye Hospital.

upon closer examination you see that the lens is perfectly clear, and that this opacity is further back. It is produced by changes in the vitreous. The tension of the eyeball is very low—T 3. At the outer side of the globe there is quite a depression. This is due to the wound of entrance, which was enlarged to remove the foreign body. The ball is flattened. The iris at the outer side is almost in contact with the cornea. This indicates a slight dislocation of the lens, downward and to the temporal side. The vitreous has contracted, just as other connective tissues do in cicatrizing, and has caused displacement of the lens.

The patient comes to-day on account of both of his eyes looking red. We at once think of sympathetic irritation or inflammation. The symptoms of sympathetic irritation are great photophobia, the eyes cannot be opened widely in the light, there are excessive lacrymation and diminution of the range of accommodation. Sympathetic inflammation is an irido-choroiditis, beginning with much the same group of symptoms, to which are presently added the grave organic changes.

Here we notice that the iris is of normal color and reacts normally. It is entirely free from congestion, and on looking closely we see that the redness is entirely conjunctival. The part of the white of the eye most distant from the cornea is the reddest, and on the globe the congestion is not deep, but is confined to the conjunctiva. It is clear that this is not inflammation due to the injury. It is simply catarrhal conjunctivitis. We must bear in mind the possibility of this simple inflammation starting up in an eye that has been injured, and not needlessly sacrifice the injured eye simply on account of an acute conjunctivitis. In this case the appearance of the pupil of the injured eye is a noticeable blemish, but the sightless globe is less trouble than an artificial eye, and the redness for which he comes is no indication for doing enucleation.

Sometimes you may have a condition simulating sympathetic irritation, due to eye strain from refractive error in the sound eye. I now recall a patient who had an injury of one eye of many years' standing. He came on account of a sharp attack of iritis in the injured eye, while the sound eye was hyperopic, and he was suffering from eye strain, which might readily have been taken for sympathetic irritation. I treated the iritis and gave him the proper glass for his refractive error, and in the two and a half years since that time he has had no trouble.

Dislocation of the lens is often dangerous on account of its tendency to cause secondary glaucoma. But glaucoma is out of the question in this eye on account of its extremely low tension. Sympathetic irritation is more frequent many years after the injury. Frequently it occurs after the choroid has become partly ossified.

Another interesting point is that this eye presents the appearance of glioma. We have, in fact, a typical case of so-called pseudo-glioma in this appearance of the yellowish reflex caused by the exudate into the vitreous, with the unequal pushing forward of the iris by the slightly displaced lens.

If this appearance of glioma were presented in the eye of a child who had no previous history of disease to account for it, it would indicate true glioma ; but if it were noticed after spotted fever, typhus, typhoid or scarlet fever, conditions where the vitreous is apt to be involved in chronic exudative inflammation, it would probably be like this, a pseudo-glioma.

The magnet ought, as it was in this case, to be used for the extraction of foreign bodies from the vitreous wherever it is possible. But, as in this case, removal of the foreign body in this way will not always prevent loss of sight or even loss of the eye. Here it was too late, although only about sixty hours after the injury. *A guarded prognosis should always be given, even if the foreign body is successfully removed.* Sympathetic irritation did appear in this case some weeks later, and the eye had to be enucleated.

Case II.—J. W., a machinist, was struck in the right eye by a flying piece of steel Three weeks after the injury, which had been followed after some days by failing vision, he came to the clinic. At that time his vision was 5-15ths in the right eye, 5-5ths in the left. There was hyperemia of the bulbar and tarsal conjunctiva of the right eye and a very small central macula of the cornea. The ophthalmoscopic examination showed a slight line of opacity in the lower anterior cortex of the lens passing from just below the centre of the pupil outward and very slightly downward. Just above the centre of the lens there was an opaque line running backward, slightly upward and inward, but apparently not reaching to the posterior capsule. There was haziness in the direction of the three principal sectors of the lens ; and a piece of steel could be plainly seen near the posterior pole in the lens substance.

Now, six weeks after the injury, the vision in this injured eye has fallen to 5-25ths, and there is decided increase in the lens opacity. As you use the ophthalmoscope you can see the black, linear, foreign body lying in the lens in a cloud, which is the result of its presence. The faint scar in the anterior capsule is more noticeable than it was at the first examination. By oblique illumination you can see the black foreign body in the inner upper part of the pupil. The treatment thus far has been the instillation of a solution of atropine. The use of a mydriatic tends to prevent the increase of the opacity. The resulting opacity from a foreign body in the lens will sometimes remain stationary for a long period if you use the mydriatic to keep the lens at rest.

Every act of accommodation changes the shape of the lens, and so causes friction of the lens fibres where the foreign body is lodged. By keeping the lens quiet for a long time if there is only a wound of the lens, you can sometimes prevent permanent opacity, but if the foreign body is lodged there, this is not probable. One can only delay the development of the opacity. You notice here that in spite of the mydriatic the opacity is spreading and following different sectors of the lens, and has much the appearance of a posterior polar cataract.

If the foreign body were in any other portion of the eye, I would not allow it to remain; but while it is in the lens, it is not likely to make other trouble by causing infective disease, and is in a position to be watched as readily as a culture in a test tube. When the lens becomes entirely opaque, it should be extracted and the foreign body thus removed. The treatment until now has consisted solely in the use of the mydriatic and dark glasses. We will now discontinue the mydriatic in order that the opacity, which already prevents useful vision, may be hastened toward maturity.

Two months later the lens had become quite opaque, and was readily removed with the chip of steel within it by simple extraction; and by the use of the proper glass the patient obtained 5-5ths vision.

A STUDY IN SCARLET FEVER: APPARENT TRANSMISSION OF IMMUNITY BY THE INOCULATION OF HUMAN BLOOD SERUM.

By Albert S. Ashmead, M.D.,
New York.

On June 1, I was called to attend Willie D., aged 4½ years, whom I found suffering from scarlet fever. He had been stricken two days before with severe vomiting, prostration and high fever. The night of May 31 the eruption had appeared. When I saw him he was wildly delirious; vomiting had persisted all the time; he was restless; temperature 104° F.; pulse, 130; eruption appearing generally over the body, face pale, features pinched, tonsils swollen, fauces and throat intensely red, strawberry tongue. I gave him ten grains of citrate of potash every two hours, and anointed the body with carbolic vaseline, ʒss to ʒij, and injected in his fore-arm, just below the elbow, thirty minims of pure blood serum, taken from a blister on the breast of my own child, who had had scarlet fever five years before, having been under the care of Dr. Edward L. Partridge. The sister of my patient, Lizzie D., aged 2 years and 9 months, had never had scarlet fever; she slept with her brother. I injected a portion of the same blood serum

into her arm as a preventive. On June 2 the efflorescence on the boy was full and intense, and very dusky; in fact, the most intense eruption I have ever seen; it was complete from head to foot; temperature in axilla, 101° F.; in rectum, 101½° F.; the glands at the angle of the jaw were swollen. A second injection was given the patient, and the girl was also inoculated again. On June 3 the boy's eruption was fading; temperature in axilla, 100° F.; in rectum, 100½° F.; pulse, 120; several scars on the body were very white; boy and girl both injected again. On June 4 desquamation plentiful at the point of insertion of the serum; the eruption has rapidly faded, and almost disappeared; temperature, 100° F. in axilla, 100½° F. in the rectum; boy and girl both injected. June 5, desquamation spreading over legs, arms and neck; throat symptoms disappearing; the only remnant of eruption is over the back and the front of the body; temperature in axilla, 99½° F.; in rectum, $100\frac{2}{10}$° F.; pulse, 120; the boy eats heartily; both boy and girl received another injection. June 6, desquamation general, scaling in large sheets; throat symptoms have entirely disappeared; appetite good; temperature in axilla, 99¼° F.; in rectum, 100° F.; both receive an injection. June 7, desquamation rapidly ending; temperature in axilla, $99\frac{2}{10}$° F.; in rectum, $99\frac{8}{10}$° F.; pulse, 108; appetite good; both receive injection. June 8, normal temperature; pulse, 96; no redness in fauces; desquamation ending; appetite excellent; injections repeated. June 9, temperature normal; pulse, 96; desquamation almost ended; the boy passed at one time ten ounces of urine; the passage of urine has been plentiful throughout; injections given. June 11, temperature normal; pulse, 96; desquamation ended, except on the index fingers and calf of one leg; no throat symptoms; child dressed and moving about as usual; no one would take him for a convalescent; injections repeated. June 13, evidences of dropsy in the boy's face; examination of urine shows presence of albumin; specific gravity, 1025; gave him digitalis, tincture of iron and muriate of pilocarpine; ordered hot baths at night, and placed him on an exclusive milk diet. June 15, swelling in the face diminished; no swelling in the legs; very smoky urine; only two ounces of urine passed in the last twenty-four hours. June 16, about the same. June 17, no fever; increased swelling of face; no swelling of legs; passed two and a half ounces of urine in the last twenty-four hours; vomiting. June 18, vomited four times; face very much swollen; some pitting in the legs; three ounces of urine passed in twenty-four hours; some desquamation on one palm; none on the soles; applied a blister of cantharides to the loins, three by six inches; has had a good passage since giving him ten grains of compound jalap powder. June 18, evening; surprising diminution of dropsy; passed five ounces of urine since morning; skin

moist; he had two bowel movements; blister opened and dressed. Fifteen minims of this blister serum inoculated in the arm of the sister, and fifteen minims inoculated in a white rabbit; fifteen minims of precipitated albumin from the urine of the boy also inoculated in a second white rabbit.

The analyses of five specimens of urine taken on the third to fifth days of desquamation, give these results:

(1) Specific gravity 1025, strongly acid, oil globules abundant in quantity, a trace of epithelial debris from the kidney, a few epithelial casts, a few granular casts (narrow fragments), a trace of oxalate of lime, a few blood casts (narrow fragments).

(2) Strongly acid, specific gravity 1025, numerous narrow convoluted granular casts, a trace of epithelium from mucous surface of the bladder, diplococci numerous.

(3) Granular casts abundant.

(4) Epithelial fragments, a few broad casts, numerous granular (narrow) casts, a trace of phosphate of lime, a trace of pus corpuscles.

(5) A few granular casts, sulphuric acid .8, water 94 (to f℥i), a trace of urate of soda.

In every one of these specimens the polariscope[1] showed 3 per cent. albumin. In each specimen there were about 2.06 grains urea to the fluid ounce.

June 19, passed in the night three ounces of urine; in the evening, facial dropsy was much diminished; less albumin in the urine; passed two ounces this morning. June 20, five ounces of urine passed since last night's visit; slept well; less dropsy in the face; some in the legs still; albumin steadily diminishing; absolute milk diet continued. An analysis of the blood serum of the patient, which was inoculated into the girl and the rabbit without producing sickness in either, showed streptococci pyogenes in abundance, and leucocytes without ameboid movement. June 21, boy passed eleven ounces of urine. June 22; eighteen ounces of urine passed, rapid convalescence evidenced by the appearance in excessive quantity of urates of ammonia and soda, and acicular uric acid crystals.

June 26, the white rabbit subcutaneously inoculated with the albumin of the urine, and which had been ailing ever since the operation, died.

Examination of the blood serum taken from the boy June 18, by the Doremus' apparatus, showed 4.06 grains of nitrogen to the fluid ounce. Abundant streptococci and spores were seen in the microscope, with $\frac{1}{25}$-inch objective (1500 diameters). Leucocytes in excessive quantity, granular matter well marked and well defined in out-

[1] Wentskie-Schiebler. Franz Schmidt and Hoensch, Berlin.

line. The streptococci were freely scattered in the field of observation.

Thomas K., aged 6 years and 8 months, on the eleventh day of desquamation, fingers peeling like gloves; one fold of skin *en masse* from the buttocks; throat symptoms very intense; diphtheritic membrane on one tonsil; no albumin in urine. Blood serum examined under the microscope on the thirteenth day of the disease; 1000 diameters ($\frac{1}{16}$-inch homogeneous immersion lens) shows leucocytes with ameboid movement, granular matter not marked, and indefinite in outline; no streptococci; urine neutral; specific gravity 1010, ninety-seven parts of water. Ten minims of this serum was inoculated into the little girl, the sister of the first case of scarlet fever. No infection resulted.

Blood serum in the second case of scarlet fever, seventeenth day of the disease, 1000 diameters ($\frac{1}{16}$-inch homogeneous immersion objective) shows in the leucocytes protoplasmic movement very active, very distinct; granular matter well marked. Doremus' apparatus shows in this serum 1.23 grains of nitrogen to the fluid ounce. Examination of the urine of the same case, on the same day, gives specific gravity 1012, acid, 95 parts of water, urate of soda and oxalate of lime, and no albumin by one to 40,000 test, Millard's solution.

Examination of a drop of blood of this case on the same day (seventeenth), that is at the full stage of desquamation, 1000 diameters ($\frac{1}{16}$-inch objective homogeneous immersion) shows the leucocytes actively at work; ameboid movement very distinct; granular matter well defined; fibrin coarse in texture, excessive in quantity; red corpuscles slightly plastic and in irregular masses or hummocks and not inclined to form nummular rolls. It is now sixty days since the first boy developed scarlet fever. His serum when inoculated into his sister, who had never had scarlet fever and whose association with her brother has been of the closest kind throughout, no isolation whatever being made, sleeping with him, fondling and kissing him, did not communicate the disease.

It may be objected that this test was not a fair one, as the immunized blood serum from my own child was also inoculated into the boy, and that if there was any protective principle it might have acted on the boy as well as on the girl. I therefore used a further test. I took the blood serum of the second case of scarlet fever and inoculated it in the girl. She did not take scarlet fever.

There are in the first case of scarlet fever the following points of interest from a clinical point of view: The quick fall of temperature following the first insertion of immunized blood serum, its continuance at about 100° F., the early commencement of the desquamative stage, its commencement at the points of inoculation and its early complete ending.

The death of the rabbit inoculated with albumin would at the first blush indicate a toxic principle in the albumin of scarlet fever, but subsequent careful experiments with this same albumin precipitated with alcohol filtered through absorbent cotton, washed with distilled water and evaporated, failed of a toxic result when inoculated in a white mouse, white rabbit and guinea pig. The presence of nitrogen in excess in the blood serum of the two cases with and without the presence of albumin in the urine, evicently has a connection with the disease. The white corpuscles of the blood seem, therefore, to have in scarlet fever the function of carrying nitrogen,[1] the product of decomposing tissue, to the emunctory organs, the skin and kidneys. They are, therefore, not alone phagocytes, they are chemists and scavengers, and in their ameboid movement they encircle particles of foreign matters or organisms, not to feed on them, but to carry them to the dumping grounds of the economy.[2] In their normal emigration through the capillary walls they carry out the refuse and then return from the lymph spaces to their regular habitat.

A poison, like that of scarlet fever, entering from the air into the current of blood through the mouth and lungs, throws possibly an extraordinary amount of work upon the leucocytes, and in the struggle, if there is any interference with their work of elimination through the natural outlet, the skin, such as imperfect desquamation, contraction of the capillaries by cold, too short a period of desquamation, the leucocytes perish and give up their serum albumin to the blood. This albumin probably is the albumin eliminated through the kidneys. The appearance of albumin in scarlatinal urine, therefore, means a destruction of leucocytes. These leucocytes also are carriers of nitrogen, and the appearance of an excess of nitrogen in scarlatinal blood serum means an increase of katabolisim, in the skin especially.

I will give my conclusions as succinctly as possible. It is probable that the first inoculation of immune blood serum gave protection to the girl. Therefore, there was no necessity for repeated inoculation. I think I am justified in believing that the assertion of Ogata and Jasuhara, of Tokio, that even one drop ot immune frog's blood, or half a drop of immune dog's blood, is sufficient to protect a mouse from the fatal effect of an anthrax inoculation, states at least a probable fact.

[1] The sweat of man contains 0,452 per cent. albumin. The total nitrogen is more considerable than the nitrogen of the urea in the sweat, the excedent of nitrogen belongs in great part to the albumen with albuminates of the sweat, Gaube, Paris. Hydrozymases and albumen in human and animal perspiration.

[2] It is an error, I am sure, to consider the nuclein of a white corpuscle, the nitrogenous part of it, as belonging to the corpuscle; it is only a temporary content, which is being carried out of the body. But it is rightly believed that the serum-albumin of a white corpuscle, which is the proteid left after the removal of paraglobulin, is a part of the corpuscle. This may or may not become a tox-albumin. It does become a tox-albumin in the rigor mortis.

The streptococci had nothing to do with the disease.

The boy's serum, on the eighteenth day, when inoculated into his sister, was not infectious.

The albumin of scarlatinal nephritis is not toxic.

The inoculation of scarlet fever with immunized blood serum is not curative.

The inoculation without infection of the girl with ten minims of blood serum from the second boy, who had not been immunized, apparently proves the immunity conferred by the first inoculation.

I add two practical suggestions: The application of a blister over the kidneys in scarlatinal nephritis is followed by good effect.

The earliest symptom of improvement in this complication is the appearance of urates and uric acid crystals in the urine.

CLINICAL DEPARTMENT.

KENSINGTON HOSPITAL FOR WOMEN, PHILADELPHIA.

[Service of Dr. Charles Noble.]

CASE OF PERITYPHLITIC ABSCESS WITH OPERATION.

Lizzie R., aged 11 years, has always enjoyed good health until recently. About two years ago she was ill with pain in the abdomen. Her next illness was about Christmas, 1892. At that time she suffered with pain in the right side and abdomen, and had a peculiar stiff walk. She was again sick on March 3, 1893, with diarrhea, accompanied with nausea at times. She was confined to bed five weeks. Her disease was pronounced gastro-enteritis by the attending physician. On April 3 she presented symptoms of obstruction of the bowels, such as obstinate constipation and fecal vomiting. The temperature was $98\frac{2}{5}°$. The pulse was 102.°. After faithful trial of calomel in divided doses, salines and rhubarb (which was better retained than the salines) and enemas, without any result, she was brought to the Kensington Hospital for Women with a view to operation. Before, however, proceeding with the operation, she was given a trial with the hospital's purgative enema, which consists of

℞. Magnesii sulph. . . . . ℥ij.
Ol. terebinth. . . . . f℥ss.
Glycerini . . . . . f℥ij.
Aquæ bullient. . . . . qs. ad. f℥iv.

The bowels moved freely, and they were kept open by small doses of calomel and salines.

The following morning the temperature was $97\frac{4}{5}°$. She had no pain, no vomiting, was comfortable, and appeared bright, and was removed to her home on the third day. She was soon up and playing about in her usual manner. Two weeks later she was again in bed with pain in the right lumbar region and symptoms otherwise of an indefinite character. After a brief stay in bed she was so far improved as to run about. On May 12 the patient was a second time brought to the hospital suffering with pain in the right lumbar region. Now, a mass was outlined in the right lumbar and iliac regions, very tender to the touch. Temperature, 102; pulse, 124.

On the following day, the third of her latest illness, she was etherized, and a lateral incision, two and a half inches in length, was made upward from the middle of the crest of the ilium over the most prominent part of the mass, in order to open directly into the abscess, in the way suggested and practiced by Willard Parker. The peritoneum was greatly pressed forward, and an abscess, containing about six ounces of pus, was opened. A drainage tube was inserted, and the wound partly stitched up. The patient made an uninterrupted recovery.

Of course, in this instance the general peritoneal cavity was shut off by inflammatory adhesions, and the case illustrates the simple procedure of opening an abscess.

The best way to deal with cases of appendicitis is one of the most urgent surgical problems of the day, and numerous solutions to the problem are offered to us. On the one hand, we are assured by those having a strong anti-surgical bent, that these cases recover almost without exception without operation; that not one of them in twenty requires operation. On the other hand, some surgeons, bearing in mind the fact that one can never foretell in a given case of appendicitis what its termination will be, have advised that every case shall be operated upon promptly, unless the symptoms be of the most trivial character. The day has not arrived as yet to lay down any hard and fast rules in the management of cases of appendicitis. It is doubted by no one that the only hope of saving life in a case of spreading peritonitis, due either to perforation of the appendix or to rupture of a peri-appendicular abscess, is by an immediate resort to celiotomy, the removal of the diseased appendix, the thorough irrigation of the peritoneal cavity and drainage, either glass drainage alone, or glass drainage supplemented by gauze drainage. Also, it requires great prejudice against surgical procedure to deny that a patient has better prospects for life and health if he submits to the removal of his appendix, when he has had several attacks of appendicitis. Under these conditions the operation is comparatively a simple and safe one if done between attacks.

The foregoing propositions are generally accepted, but they do not touch upon the great mass of cases of appendicitis, and the question is how to deal with them. When the symptoms are at all grave, surgeons are inclined to accept the teaching that if improvement does not follow purgation, the case should be operated upon not later than the second or third day. The cases in which the propriety of, and the necessity for, operation is least certain, are those in which the symptoms are not severe, the inflammation localized, and in which there is no reason to believe that suppuration is going on. Unless there be further light upon this subject, we believe that most lives will be saved in this class by associating the physician and surgeon in the management of the case, treating it medically so long as threatening symptoms do not appear, and being ready to resort to operation at once, if signs of spreading peritonitis or of suppuration appear. It is granted that errors in diagnosis concerning the presence or absence of pus will be made, and that patients will die at times through these errors; but, on the other hand, it can hardly be disputed that some cases will die, if all are indiscriminately subjected to operation. While the matter is *sub judice*, we shall continue to advocate this method of dealing with the great bulk of cases of appendicitis.

It will occasionally happen in cases of mild type that signs of suppuration will not be present, and yet pus formation will go on until a large abscess is present. In such cases if it can be done, it is far better to make the incision at such a point that the abscess cavity itself will be opened directly without opening the general peritoneal cavity. Operating for perityphlitic abscess in this way is no more dangerous than opening an abscess in any other portion of the body. Unfortunately, it is not possible to wait for the formation of a large abscess in many cases. If this plan were followed the majority of the patients would die while the surgeon was waiting for the pus to increase sufficiently to come in contact with the anterior wall of the abdomen.

WILLIAM E. PARKE, M.D.,
Surgeon to the Out-Patient Department.

EDITORIAL.

SHALL TINCTURES BE PREPARED FROM FLUID EXTRACTS?

The necessity of uniformity in our medicinal preparations, thus ensuring accuracy of dose, has probably always been felt by physicians. It was not until 1817, however, that this idea received practical consideration in this country. In the year mentioned Dr. Lyman Spalding submitted to the Medical Society of the County of New York a proposition for the compilation of a National Pharmacopœia. The plan was heartily approved, and resulted in the publication of the first United States Pharmacopœia in 1820. Previous to this date European pharmacopœias were chiefly used as authorities.

Since the publication of our first pharmacopœia it has been subjected to regular decennial revisions. This work is intrusted to a convention, to which are invited delegates from all the incorporated medical colleges, medical societies, colleges of pharmacy and pharmaceutic societies of the United States, in addition to representation from the Army and Navy and Marine Hospital Service. The truly "national" character of the work is thus ensured. It is a satisfaction to feel that a prescription will be identical in composition whether filled in Maine or California if compounded at representative stores.

There is, however, we regret to say, a class of druggists who for various reasons deviate from the prescribed method of compounding some of the official preparations. Although this is doubtless done to cheapen the cost of the product in some cases, and to lessen the labor required in others, we believe many fall into the habit because they think the modified product "is just as good."

The most conspicuous example of this custom is seen in the preparation of "tinctures" from fluid extracts by some pharmacists, instead of from the drug as is prescribed by the pharmacopœia. This method results in a saving of time, of labor and of expense. If, therefore, these extract-tinctures represent all the valuable qualities of the drug-tinctures, the argument is wholly in favor of adopting the former. That this is not the case, however, is well set forth by Mr. Joseph W. England in a valuable communication in answer to the query, "Is it possible to produce fluid extracts of such strength that they can be diluted with proper menstrua to standard tinctures?"

The case is clearly presented by the author as follows: If such fluid extracts can be made, it is obvious that the following conditions must exist: (1) That the physical conditions under which the drug is exhausted, shall be the same in making the fluid extract as in making the drug tincture. (2) That the menstruum employed in making the fluid extract and the drug tincture shall be identical. (3) That in the making of the fluid extract the drug shall be exhausted of all the proximate principles present in the drug tincture and in as great a relative proportion. (4) That the fluid extract shall not be altered in composition by heat from concentration of percolate. (5) That the fluid extract shall not precipitate proximate principles on storing, and have had these removed before being used.

If fluid extracts are to serve the double purpose of being used for making tinctures and also for their own virtues, it is essential that they contain all the soluble proximate principles found in drug tinctures, and in as great relative proportions.

It is well known that the virtue of a drug is not represented by any one of its proximate principles, and as the alcoholic strength of the menstruum used in making fluid extracts differs from that employed in the preparation of tinctures, it is obvious that the principles extracted cannot be the same in each case, and it follows, therefore, that extract-tinctures do not represent drug-tinctures.

It is a mistaken belief, the author truly says, to suppose that a definite relation exists between the tincture and fluid extract in the amount of drug represented; that, for example, a 100 per cent. fluid extract represents five times as much drug as a corresponding 20 per cent. tincture. A due allowance must be made for the removal by the maker of proximate principles precipitated by the fluid extracts; admitting the possibility of the concentrating in fluid extract, all the soluble principles of drugs. Hence, under the best conditions, the making of tinctures by diluting fluid extracts cannot yield products equally representative with drug tinctures, unless perfect exhaustion of drugs be had in making the fluid extracts, and proper allowances be made for the character and amount of proximate principles separated from them; and this latter, from its variability, is out of the question.

It is also in evidence that fluid extracts and tinctures have distinct therapeutic fields; that they vary from each other in the relative proportions, and in some cases, in the kinds of proximate principles represented, and that fluid extracts diluted in the usual way cannot of necessity be the same things, *therapeutically*, as tinctures made from superior qualities of drugs.

For these reasons the practice of using fluid extracts for making tinctures should be condemned as inimical to the best interests of

legitimate medicine and pharmacy. Physicians should, therefore, satisfy themselves that their druggists conform to the pharmacopœal requirements not only in the manufacture of tinctures, but also in compounding all other preparations.

NEGLECT OF PUERPERAL PATIENTS.

In our large cities the profession is coming more and more to realize the necessity for skilled nursing after confinement, and also the fact that the puerperal patient requires from the physician closer attention and more skillful treatment than has been customary for the general practitioner to give his patients in the past. Even at the present time, however, many physicians are content to entrust their lying-in patients to the care of the bothersome, ignorant and self-opinionated monthly nurse, and the patients in turn, influenced by the doctor's consent, are glad to escape the expense, and not infrequently the household annoyance, of the trained nurse. That this condition of affairs is quite frequent is beyond question, and that this trust-to-luck policy on the part of the doctor toward his puerperal patients is pernicious the increasing work of gynecologists and the widespread popularity of this branch of medicine are striking proofs. The danger of infection which a contused and lacerated parturient canal offers, is certainly appreciated by the intelligent physician, and why serious trouble does not more often follow when the ordinary case is attended by a nurse ignorant of the danger of dirt, is more the result of good luck than good management. Unfortunately, however, these patients do not escape the penalties of such neglect. Immediate serious consequences may not appear, but weeks or months after the negligent doctor and nurse have ceased their attendance the results of their carelessness are manifest. Leaving out of consideration the immediate deaths from sepsis—preventable deaths in largest measure by clean doctors and cleaner nurses—of which not less than 300 occur annually in our own city, the enormous amount of uterine and pelvic diseases directly traceable to carelessness and lack of cleanliness during the puerperium is sufficient to make one cease to wonder that many women should do their best to avoid bearing children. How frequently we hear the statement: "I have been wretched since my first child was born." Subsequent to the actual delivery comparatively few physicians give their patients the discriminating attention they should receive. Thousands of women present themselves at the numerous dispensaries where such cases come for relief, and inquiry demonstrates the lack of attention both on the part of physician and nurse throughout the lying-in period.

In a very large proportion of these cases no word of caution had been given the nurse or patient as to painstaking cleanliness; no examination had been made by the attending doctor to determine the extent and character of injuries received, to ascertain the existence of uterine displacement, subinvolution, parametritic exudate, or other evidence of mild infection, latent, perhaps, at this time, but a potential factor of future discomfort or danger.

It should be remembered also that the genital organs are not the only ones whose neglect and careless management at this time are a fruitful source of disease. To a lesser degree certainly, yet of sufficient importance, is absolute cleanliness necessary in all manipulations of and attentions to the urinary tract. The danger of the careless and ignorant use of the catheter is very plainly shown in a paper by Norris (*Annals of Gynæcology and Pædiatry*, July, 1893), and his conclusions, based upon a study of his own and other reported cases, are of interest. He refers to the frequency of cystitis following the use of unclean catheters, and points out the greater danger of kidney infection from the spread of infecting agents from the bladder along the ureters. After describing an interesting case, which, after a prolonged and most dangerous illness, finally recovered, he concludes that infection of the urinary tract usually follows the careless or ignorant use of the catheter. Although it may occur independent of this instrument, the infecting agent gains access, in rare instances, from adjacent structures. He points out an interesting relation between the temperature curve and the secondary kidney infection, and discusses the time of occurrence of the latter. The high mortality of this complication after labor—38 per cent.—is not generally appreciated, and is another argument in favor of closer attention to the details of the management of the lying-in patient, so often left to the judgment of an ignorant caretaker. So long as obstetrics remains the specialty of the general practitioner, with the neglect which puerperal women will necessarily suffer at the hands of a busy man in general practice, just so long will these grave and latent accidents of infection occur, and we refer to the above paper to impress upon those engaged in obstetric practice another source of danger which we feel sure is scarcely thought of and rarely avoided with the care it deserves.

When the profession realizes the absolute necessity for specially skilled medical services and careful, trained nursing in all obstetric cases, the child-bearing woman will be in a position to anticipate not only a safe delivery, but a post lying-in existence robbed of its long drawn out ill health—a complex of uterine and pelvic disorders and reflex nervous disturbances which, with the cark and care of household duties, rob mothers of that buoyancy of spirit and happy contentment which should be the reward of maternity.

ALUMNI NOTES.

Address all Communications for this Department to

JOSEPH P. TUNIS, M.D.,

Secretary and Treasurer of the Alumni Society of the Medical Department of the University of Pennsylvania, 129 South Eighteenth Street, Philadelphia, Pa.

THE University Press has recently perfected an agreement with the Executive Committee of the Alumni Society of the Medical Department of the University of Pennsylvania whereby the UNIVERSITY MEDICAL MAGAZINE will be furnished to the members of the Alumni Society at such rates that the annual dues of the Society ($1) and the MAGAZINE may be covered by the subscription price of the latter, namely, $2.

This magazine—representing as it does the medical work being carried on at the University, its pages being constantly enriched by the results of original research—should find its largest circulation and most enthusiastic support among the graduates of this Department, numbering, at the present time, upwards of 11,000 men. Graduates, scattered as they are over this great continent, may be kept in touch with their alma mater and with each other by means of printed reports periodically received much better than it has been possible to do in the past without any such means of communication. Should this arrangement meet with the favor it deserves, a certain amount of space in each number of the magazine will be devoted—

I. To a brief account of the most recent advances made in the Medical School, changes proposed, new professorships created, laboratories equipped, prizes offered, etc.

II. Due notice will be paid to matters of personal and local interest, such as appointments received, honors conferred, books and papers published, changes of residence, deaths, etc.

Items of information for this department will always receive careful attention, and will be published from time to time. It is earnestly hoped that every alumnus will take sufficient interest to contribute as occasion offers.

The remarkable progress of the University of Pennsylvania in the last five years is in no place more conspicuously apparent than in the Medical Department. During that time many hundreds of thousands of dollars have been contributed for the erection of new buildings and for the equipment of laboratories, and the result has been the Library Building, the Department of Hygiene, the Home for Nurses, the Maternity Wards, the Wistar Institute of Anatomy and a large Chemi-

cal Laboratory, now in course of erection. In addition to these increased facilities for instruction, the Faculty have established a compulsory graded four-years' course of study, with a view of elevating the standard of medical education. When this great work is considered, every alumnus has good reason to feel proud of the steady advance of his alma mater and to be deeply interested in her continued prosperity.

The need of a complete catalogue of the graduates of the Medical Department has long been felt, and, to supply the demand for such a publication, a special committee has recently been formed by the Alumni Society. To secure all the information possible, it is proposed to forward the following set of questions to every living alumnus, with the request that the replies be forwarded to the secretary as soon as possible :

1. Full name. 2. Father and mother's name. 3. Date and place of birth. 4. State matriculated from. 5. Date of matriculation. 6. Date of graduation. 7. Title of thesis. 8. Place of practice, and present address. 9. College attended. 10. Titles. 11. Publications, and positions held. 12. If ever in the United States service, state in what capacity, when, and how long. 13. If married, give maiden name of wife. 14. Children's names, if any.

In reply to these questions it will not be necessary to write them out in full, but merely to make use of the number prefixed to each.

Beginning with this year, as each class graduates, its individual members will be requested to supply this information to the Catalogue Committee, and it will be possible, in this way, to keep track of the men much more satisfactorily than it has been possible to do in the past. It is especially important that graduates of the Medical Department should notify either Mr. Salvador, at the University, or the Secretary of the Alumni Society, of any change of their address, so that such publications and notices as are issued from time to time may reach them without fail. At present, but very few correct addresses of the graduates are known.

It is contemplated at some future time to solicit subscriptions to a publication fund, the interest of which shall be devoted to the issuing of biographical sketches and histories of prominent graduates of the Medical School. The Alumni Society have already published Reminiscences of the Life of Dr. Joseph Leidy, together with the best photogravure extant of this well-known scientist, and copies may be secured for thirty cents each, by addressing the secretary. A number of similar publications might well be issued.

Information is particularly requested in regard to graduates of the Medical Department of the University of Pennsylvania who died in the service of the United States during the war of the Rebellion. Only

a nucleus thus far has been secured with which to commence the history of those noble men who fell in their country's service. Any one who can supply additional information on this subject will please confer at once with the secretary. Subjoined is a list of the names thus far secured, arranged alphabetically. It is intended, when this list is complete, that it shall be placed upon a tablet in the projected Alumni Hall.

NAME.	RANK.	YEAR OF GRADUATION.	STATE.	CAUSE, PLACE AND DATE OF DEATH.
James Theo. Calhoun .	Asst. Surg. U. S. Army .	1859	N. J.	Hart's Island, N. Y., July 19, 1866.
Edward F. Corson . . .	Surgeon U. S. Navy . . .		Penna.	Died June 22, 1864.
Abraham Cox	Surgeon U. S. Volunteers	1823	Penna.	Shot, Lookout Mt., Tenn., July 28, 1864.
John T. Crawford . . .	Surgeon U. S. Volunteers	1847	Penna.	Died at home, in Penna., June 7, 1861.
Jacob H. Gotwold . . .	Asst. Surg. U. S. Navy . .	1861	Ohio.	Killed by shell while amputating an arm ; also Hospital Steward.
James Potter Gregg . .	Lieut. & Capt. 45th Pa. Vols.	1858	Penna.	Killed at Petersburg (shot in head).
William P. Grier . . .	Asst. Surg. U. S. Army .	1858	Penna.	[1]Killed by explosion Str. "Miama," Jan. 8, 1866.
George W. Hammond .	Surgeon U. S. Army . . .	1851	Va.	Drowned in Mississippi River, Aug. 14, 1863.
Joseph Hopkinson . .	Surg. U. S. Volunteers . .	1838	Penna.	Philada., July 11, 1863.
James J. McGee	Asst. Surg. U. S. Army .		Penna.	Died Feb. 14, 1864.
David J. Minas, Jr. . .	Surg. 48th Reg. Pa. Vols. .	1854	Penna.	Unknown.
Samuel H. Peltz	Asst. Surg. U. S. Navy . .		Penna.	Drowned Jan. 15, 1865, by the destruction of the vessel "Patapsco" by a torpedo.
Charles H. Pyle	Asst. Surg. U. S. Navy . .		Penna.	Died Dec. 23, 1862, aged 21.
J. K. Sherk	Surg. 7th Reg. Pa. Cavalry	1857	Penna.	Died Dec. 29, 1864.
Richard Simpson . . .	Surgeon U. S. Army . . .	1840	Va.	Key West Barracks, Fla., July 4 1861.
Thomas Somers	Surg. 37th Reg. Pa. Vols. .	1856	Penna.	Died of wounds.
Albert Owen Stille . .	Surgeon U. S. Volunteers	1851	Penna.	[1]Died June 23, 1862.
Benjamin Tappan . . .	Asst. Surg. U. S. Vols. . .	1836	Ohio.	Killed by Indians, March 22, 1866.
C. S. Widdifield	Asst. Surg. 81st Pa. Vols. .	1860	Penna.	Died April 27, 1862.

[1] Both were killed after the war, having served until its close.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.

The Intermittent Treatment of Malarial Fever with Quinine.

M. Alcede Treille (*Le Mercredi Medical*, June 28, 1893) gives his voice in favor of the intermittent administration of quinine in malaria:

"Granted that the administration of a single dose, properly graded, at the beginning of a paroxysm will always prevent further paroxysms for at least five days, there is no occasion for giving the drug continuously. The proper method is to attack each paroxysm as it appears. One avoids thus the useless administration of quinine."

This method rests upon an experience of two years, and the results are invariable. Any fever occurring within five days after the first administration of a proper dose is accidental and does not call for quinine.

Acute Gangrene of the Lower Extremity in a Case of Locomotor Ataxia.

Professor Alfred Fournier (*Le Mercredi Medical*, July 12, 1893) gives the following case: M. X. acquired syphilis at the age of 26, which was not treated, but seemed to pass away without traces. Two years later he was seized with intense pain in the left side of his head, and a right-sided hemiplegia soon developed. He was then put upon specific treatment and recovered completely. A few years later he suffered from sharp pains in the legs, which were attributed to rheumatism. Twenty-three years after the beginning of the syphilis a complete paralysis of the third nerve on the left side developed suddenly, with ptosis, external strabismus and mydriasis. On careful questioning and examination the following symptoms were elicited: Lightning pains in the legs, points of anesthesia on the legs, absolute loss of the patellar reflex, Romberg's symptom, ataxic gait, disturbances of the bladder, diminished sexual ability. He was treated with mercurial inunctions and iodide of potassium. The ocular paralysis recovered entirely, and the other symptoms did not increase. Six years later he was taken suddenly ill and complained of indefinite girdle pains and then of a fixed pain in the left foot. The foot became red, fever developed, the foot became edematous and the next day dark and evidently gangrenous. Great prostration ensued, the gangrene advanced to the leg and thigh and on the sixth day the patient died of exhaustion.

Apropos of Salol in Cholera.

Girode (*La Riforma Medica*, Naples, June 15, 1893) describes a case in which two concretions composed of salol were found in the stomach after death. The patient died of cholera. At the autopsy it was noted that in the most pendent part of the stomach were two projecting masses, around which the mucous membrane was congested. On opening the organ two masses of salol were found, one weighing 1.559 grams, the other 1.259 grams. Salol had been administered in moderate doses for two days during his illness and then discontinued because it caused vomiting.

O'Dwyer's Tubes in Chronic Stenosis of Larynx.

Baumgarten (*Archiv. für Kinderheilkunde*, Vol. xv, Parts v to vii, 1893) reports two cases, one of chronic subglottic hypertrophy of the larynx, and the other chronic syphilitic stenosis of the larynx. The tubes in both cases were allowed to remain in place at first for several hours, and afterwards removed and replaced for shorter periods, at first several times in the day, then daily, and at the last once a week. No other interference was necessary with the obstruction, the presence of the tube causing absorption of the occluding stricture.

Enlarged Spleen in Chlorosis.

Cavostek (*Wiener klinische Wochenschrift*, July 6, 1893) reports five cases of chlorosis in which the spleen could be felt beneath the border of the ribs. In all these cases the enlargement of the spleen disappeared with the recovery of the case, thus proving that the tumor was due to the blood disease. In these cases the number of red blood cells ranged from 1,900,000 to 3,500,000; the hemoglobin from 20 to 56 per cent. The duration of the cases was about one year. He concludes that the presence of a splenic tumor in chlorosis is not a bad prognostic sign.

Digitalis.

H. C. Wood (*Boston Medical and Surgical Journal*, May 18, 1893) delivered one of his characteristic lectures before the Harvard Medical School Association. He has frequently seen the cumulative action of digitalis, which is sometimes denied by other writers. The great indication for the use of the drug is cardiac weakness. In the so-called irritable heart, seen in soldiers and athletes, digitalis is doubly indicated. In valvular heart disease where hypertrophy exceeds dilatation, we may have actual congestion due to excessive heart action, but we do not have venous congestion and dropsical effusion. When the latter exists we know that dilatation of the heart exceeds hypertrophy and we have relative cardiac weakness, and when there is cardiac weakness, digitalis is demanded. In disease of the aortic valve, digitalis is just as much indicated as it is in disease of the mitral valve, provided there is cardiac weakness. In acute endocarditis digitalis should be commenced early, just as soon as fever and the acute process are at an end. Sometimes the drug must be used in enormous doses and should always be used in doses great enough to produce the physiological effect, no difference what amount is necessary. The great contradiction of digitalis is aneurism. The drug should never be given in that disease. Digitalis may be used in all cases of acute disease when there is heart failure, though it is of singularly little use in fevers. He believes the tincture is just as useful as the infusion. It is safest to give it in minim doses and not drop doses, because the size of the drop is uncertain.

High Altitudes and Pulmonary Phthisis.

Conrick (*The Journal of the American Medical Association*, June 10, 1893) concludes a rather exhaustive article on the above subject as follows: A dry climate is to be selected; sleeping out of doors is of the greatest benefit; patients should not "rough it," but should studiously avoid inclement weather and everything which causes fatigue, however, spending every hour possible in the open air. When every symptom of the disease has vanished, a return to a damp climate will almost certainly cause a recurrence of the disease, but he believes the patient may then remove to any other dry climate with safety.

Whooping-cough.

Theodor (*Archiv. für Kinderheilkunde*, Vol. xv, Parts v to vii), in the observation of 353 cases of whooping-cough, comes to some conclusions different from those usually held. He has observed five cases with undoubted second attacks of the disease. His cases did not principally occur in the winter and spring, as is accepted, but were spread indiscriminately over the whole year. In his series 25 per cent. were under eight months, in opposition to Eichart's view that the disease is rare under six months.

The medication used chiefly was a combination of bromoform and antipyrin. He also used extract of hyoscyamus. The mortality was small, except in children under three months.

Methyl-blue in Malaria.

The *Deutsche Medizinal-Zeitung*, No. 45, 1893, has three abstracts on the use of this drug in malaria. Parenski and Blattesei (*Therapeutische Monatshefte*, 1, 1893), used methyl-blue in thirty-five cases of malaria. The cases all had severe chills, enlarged spleen and plasmodia in the blood. The drug was used subcutaneously, and by the mouth. Subcutaneously it was used in 1 per cent. or 5 per cent. solution, a quarter of a grain to a grain and a half, being used daily. By the mouth the dose was five grains three times a day. The drug was used also in twenty-six healthy individuals as a test in doses of one to three grains by the mouth. There were no ill effects. In larger doses there was vomiting at first, which finally disappeared. The urine and stool were colored intensely blue. After subcutaneous use there was but little pain, the urine was slightly green, the stool not colored. Usually the use of the methyl-blue caused immediate disappearance of the fever, after three to five hypodermic injections or three to six internal doses. The spleen gradually diminished in size, and the plasmodia disappeared from the blood. They conclude that methyl-blue as quinine is an excellent anti-malarial drug, which, like quinine, sometimes fails. On account of its coloration of the secretions and excretions, it should be used only where quinine fails.

Neumann (*Pest. Med. Chir. Pr.*, 1, 1893) used the drug in three cases; in two it had excellent effects, in the third good effects. He believes the attacks may not only be readily controlled by the drug, but the spleen is speedily reduced in size. It is used in daily doses of five grains, and may be discontinued after nine days.

Kétti (*Ibid*, 2, 1893) used the drug in five cases without any result. They were afterward cured with quinine. All five cases had diarrhea, four vomiting, and two dysuria after the use of the drug.

Diagnosis and Treatment of Gastric Ulcer.

J. Boas, of Berlin, Germany (*Medical Record*, N. Y., June 17, 1892), uses the usual means of arriving at a diagnosis and establishes it by the presence of localized pain in the epigastrium and upon the examination of the stomach contents. Pain, however, may be rarely absent and hyperacidity may be present in carcinoma when the growth is upon the base of an old ulcer. He has found after many observations that a dorsal point of tenderness exists almost as frequently as the epigastric point, and the point is so sharply circumscribed that for diagnostic purposes it has far more value than the point in the epigastrium. The point is found to the left of and on a level with the tenth to the twelfth dorsal vertebra, rarely higher or lower. It lies usually directly against the vertebra, rarely some distance from it. In a few instances the point is on both sides. In no other disease, and especially no other disease of the stomach is the point found with equal constancy. In cases of colelithiasis there is a painful spot to the right of the twelfth dorsal vertebra. He uses an instrument called the "Ægesimeter," by which the pressure made can be measured. A painful point due to ulcer will not bear nearly as much pressure as one due to other causes. His treatment consists of rest in bed, limited diet and the administration of large doses of nitrate of silver in *solution*. He uses gr. iij to f℥iv of water at first and gradually increases the strength. The next bottle having gr. ivss and the third vi gr. to f℥iv. The dose is a tablespoonful diluted with a wine glass full of water and taken on an empty stomach. Some obstinate cases will not be relieved by this treatment. In these he gives no food by the mouth, but feeds by enemeta. The yolk of two eggs, half pint of milk, one teaspoonful of wine or brandy and a tablespoonful of flour are warmed and given every three hours. The return to solid food is gradual, liquids being first given.

Puerperal Eclampsia.

Gerdes (*Munchener medicinische Wochenschrift*, No. 22, 1895, and *Deutsche medicinische Wochenschrift*, 1892, No. 26) made cultures from the blood of two women dead of puerperal eclampsia, and developed colonies of bacteria that were not unlike the bacilli of chicken cholera. In pure culture they caused convulsion, unconsciousness and death in pigeons and mice. He concludes that puerperal eclampsia is due to a specific micro-organism which can be demonstrated in the blood and tissues of those suffering from the disease. Hofmeister (*Fortschritte der Medizin*, Bd. x, Nos. 22 and 23) has experimented with the bacilli of Gerdes, and believes them to be *Proteus vulgaris*, or bacteria of pus formation. Haegler (*Centralblatt für Gynæcologie*, No. 51, 1893) has experimented with the blood and tissues of four cases of eclampsia, and his results were different from those of Gerdes. He does not believe the disease is of bacterial origin. Fehling (*Ibid*, No. 81, 1893) believes that the theories of Gerdes and others, that eclampsia is due to a micro-organism, are not well founded, and that his experiments are worthless. He also says that Olshausen and others have found albuminuria in 98 per cent. of 400 cases, and that with the birth of the child the kidneys resume their function and eliminate toxin from the blood. Doderlein (*Ibid*, No. 1, 1893) has observed eight cases in which he did not find the bacillus of Gerdes, and believes it has no causative relation to the disease. Hergott (*Progres Medical*, No. 24, 1892) did not find the bacillus in seven cases, but he found in the urine of five of the cases a short bacillus, which caused eclampsia in rabbits. He believes it is of influence in producing toxines in the kidneys.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Drainage of the Ureters.

Willems (*Extrait des Anneles de la Societéde Médicine de Gand*, 1893) says that it is particulary desirable in supra-pubic operations on the bladder to get primary union of the incised viscus.

To attain this result the author has divised an instrument similar to a catheter, but forked at one end.

The instrument is introduced into the urethra by the retrograde method, while the forked ends are each introduced into the ureters. The wound in the bladder is united by a double row of sutures.

In one case the catheter was allowed to remain in the ureters four days without producing any disagreeable results.

Cranio-Cerebral Topography.

Clodo (*Revue de Chirurgie*, May, 1893) describes some ready methods of defining with almost mathematical precision the surface marking of the most important convolutions of the brain. The advantages of these methods are the facility they afford of feeling the external guides on the living subject, and the fact that the lines traced on the surface of the head bear a constant relation to the variable dimensions of the cerebral cortex. They can be applied to any subject above the age of eight years, and render quite unnecessary the use of measuring tape or any special instrument. In marking out the course of the fissure of Rolando the author draws a line from a point one-finger's breadth behind the middle of the line running from the root of the nose to the occipital protuberance, and carries it directly to the apex of the tempero-zygomatic angle formed by the zygoma and posterior border of the malar bone. This line, it is asserted, corresponds closely to the direction of the fissure, and forms the key to cerebro-cranial topography, as it enables the surgeon to map out three lobes of the brain and many of the psychomotor centres. Another method of locating the fissure of Rolando is as follows: Draw a line from the back of the styloid process directly upward to the middle of the cranial vault. The line thus drawn corresponds, at its upper extremity, with the top of the fissure, and in its course traverses the lobule of the *pli courte*, and just covers the posterior extremities of the Sylvian and parallel fissures.

The line indicating the course of the posterior or horizonal limb of the Sylvian fissure is drawn from the root of the nose through a point in the line marking the fissure of Rolando, at the junction of the inferior with the upper two-thirds. The portion of the line beyond this point, which ascends obliquely to a point a little above the lambda, marks the course of the Sylvian fissure. A line drawn from the posterior part of the apex of the mastoid process and carried through the junction of the inferior and upper two-thirds of the line over the fissure of Rolando will, in its further course, pass through the rounded head of the third frontal convolution, and bisect the lobule of Broca.

Experimental Studies on Brain Pressure.

Deucher (*Deutsche Zeitschrift für Chirurgie*, Band xxxv) has made a special study of the relation of the cerebro-spinal fluid to brain pressure symptoms.

The experiments were made upon nine rabbits. The skull being trephined, paraffin was injected into the subdural space. In some few cases pressure was produced by the introduction of laminaria tents. Three of the animals failed to give any result. In the other animals it was found impossible to produce the characteristic pulse and respiration symptoms of pressure; only epileptic attacks, hemiplegia, coma, etc., occurred.

Cysts of Bones.

Schlange (*Berliner klinische Wochenschrift*, No. 18, 1893) showed two cases at the German Surgical Congress, upon whom operations had been performed, for cysts of the femur.

The disease in both cases began with a swelling of the bone, accompanied with shortening of the limb and curving inward of the femur. In one case the cyst caused a spontaneous fracture of the bone before it was recognized. The author especially insists upon the importance of the inward bowing of the long bones as a symptom which, when accompanied with shortening of the limb, and the presence of a localized swelling in connection with the bone, is diagnostic of the disease.

The Use of Extreme Temperatures in Surgery.

Felizet (*Bulletin et Memoir de la Societe de Paris*, Vol. xviii) claims that in operating for tuberculous joints some of the diseased tissue is unavoidably left behind, and often occasions a relapse. To overcome this danger the Paquelin cautery was formerly used, but still relapses occurred.

As a substitute the author is in the habit of using a solder-tube flame, the temperature of which varies from 1500° to 1600° centigrade. Even with such high temperatures there is no danger of charring the tissues, and the wound heals by first intention. The flame should be quickly carried over the wound surface so as to avoid too deep destruction of tissue. The author has treated fifty-eight cases in this manner, thirty-eight of which have remained cured.

An Analysis of Seventy Cases of Ununited Fracture in Children.

Power (*Medico-chirurgical Transactions*, Vol. lxxv) says ununited fractures of the long bones in children are rather uncommon. Of 150 cases of fracture reported by Norris only one was found; 484 cases reported by Gurlt only fourteen were found; 685 cases reported by Agnew only twenty-eight were found. The author divides all cases of ununited fracture into three classes:

(1) Those fractures produced in utero or immediately after birth.

(2) Those produced by slight traumatism.

(3) Those resulting from osteotomies.

Spontaneous fracture is very uncommon in children.

The analysis of the seventy-two cases showed there were six of the clavicle, seven of the arm, twelve of the thigh, and forty-five of the leg.

In twenty-one cases there was subsequent consolidation; four were improved and forty-five remained ununited.

The Prognosis and Treatment of Tumors of the Bladder.

Kümmell (*Berliner Klinik*, Heft. 59) says the primary growths of the bladder are papilloma, myxoma, myoma, fibroma, angioma, sarcoma, adenoma, carcinoma, dermoid cysts, echinococcus, chondroma and rhabdomyoma. Enlargements of the prostate may readily be mistaken for tumors of the bladder.

The diagnosis had best be made with the cystoscope.

The proper treatment of all tumors of this viscus is removal, where possible, either partial resection of the bladder or even entire extirpation of it.

In women the tumor can sometimes be removed through the urethra after sufficient dilatation. He recommends the abdominal incision, with the Trendelenburg position. The wound in the bladder should be united with three rows of sutures, the first passing through the mucosa, the second through the muscular coat, and the third through the surrounding tissue. The skin wound should be partially closed, and the lower end tamponed with iodoform gauze.

Laparotomy for Perforating Ulcer of the Stomach.

Kriege, in the *Berliner klinische Wochenschrift*, 1892, No. 49 and 50, reports the case of a man, aged 41, seized with collapse in the course of ulcer of the stomach, on whom he performed laparotomy. A median incision gave exit to some gas and some of the stomach contents. The intestines were slightly injected. A transverse incision was made and the gastro-hepatic omentum torn through, but the ulcer was not seen either on the front or back wall. The incision was then prolonged to the right, and an opening the size of a pea found three centimeters from the cardiac orifice. It was closed with sutures, and gauze left in for drainage. Recovery was quick, and the patient was out of bed in fifteen days. This operation has heretofore been done seven times without a single success, but most of the cases were done in the presence of a marked peritonitis. One should operate as soon as possible, and the perforation is usually to be found near the cardiac end of the anterior wall. For the first few days after the operation the patient should be nourished solely by the rectum, and morphia should be administered to secure quiet and relief from pain.

The Treatment of Varicocele.

In the *Gazette Hebdomadaire de Médecine et de Chirurgie*, March 25, 1893, Reclus discusses the treatment of varicocele. He is not an advocate of operation except in rare cases, such as when the swelling is excessively large, or provokes hypochondriasis, or threatens atrophy of the testicle. As conservative measures he orders a suspensory bandage, cold or very hot baths, rectal injections, and iodide of potassium or extract of hammamelis internally. Atrophy or even gangrene of the testicle may follow operative procedures. The cure is also not so complete as represented, the scrotum is often left lax and pendulous, and the tendency to venous stasis persists, and the trouble is apt to recur. For several years the author has resorted to excision of the scrotum, first practiced by Dionis and afterward introduced by Henry, of New York. The operation is done under cocaine anesthesia, a 1-per-cent. solution being employed. Particular stress is laid on the necessity of stopping all bleeding. He has done the operation in twenty-nine cases, with satisfactory results.

Hoffa's Operation for Congenital Dislocation of the Hip.

Quénu reported to the Société de Chirurgie (*Le Mercredi Médical*, January 18, 1893) the results of two operations of excision, on a case of congenital luxation of the hip. The first was done in June, 1891, on a child 4½ years old. Notwithstanding all his efforts, after loosening the attachments of the trochanteric muscles and gouging out the cotyloid cavity, he was unable to replace the head of the femur, and a resection was done. The operation on the opposite joint was done in February, 1892. He loosened the trochanteric and abductor muscles, but again failed in reduction and excised this hip also. There was elongation of the head of the femur and an increase of the angle of the neck, with the shaft of the bone in both cases. The result was simply an amelioration of the saddle-back deformity.

Tamponing the Bladder, and Allowing Hemostatic Forceps to Remain, in Supra-pubic Cystotomy.

In the *Annales des Maladies des Organes Génito-Urinaire* for March, 1893, Bozy relates how, in performing supra-pubic cystotomy for a tumor of the bladder, he tamponed with iodoform gauze, and allowed the hemostatic forceps to remain in place for forty-eight hours. In two cases he left a catheter in the bladder, but did not use siphon drainage. He closed the bladder wound as tightly as possible around the gauze and hemostatic forceps. The procedure is advised whenever it is desired to operate with the least possible loss of blood, and to terminate the operation in the shortest space of time.

Tamponing the Bladder after the Hypogastric Operation.

Desnos (*Centralblatt für Chirurgie*, April 29, 1893) reports three cases in which he tamponed the bladder after the high operation. The edges of the bladder wound are well fixed, and the interior of the bladder filled with strips of iodoform gauze. The upper part of the bladder wound can then be closed with one or two sutures. The author adopted this procedure in a case of tuberculous ulceration of the bladder. The wound in the bladder remained open for one year, and was then closed, the patient having entirely recovered from his former condition. In two other cases the author used salol gauze for tamponing to relieve hemorrhage. The use of the tampon causes no discomfort, and the urine escapes freely. The gauze should be reintroduced every fourth or sixth day.

Dermoid Cyst of the Scrotum.

In the *Annales des Maladies des Organes Génito-Urinaire* for March, 1893, Reclus gives an account of a dermoid cyst which he removed from a man aged 31 years. Nineteen years previously, after lifting a stone, the patient experienced pain in the groin. A tumor appeared which was diagnosed and treated as a hernia. The tumor increased in size until it was as large as a big potato ; it also descended into the scrotum. The testicle was below the tumor. It was removed under cocaine anesthesia, and on opening it, the interior was found to be smooth, with a sparse growth of hair, both white and black. There was also a large mass of sago-like bodies which were dissolved by ether. A microscopic examination of the contents of the cyst showed only fatty globules and granular detritus of epithelial cells.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

The Therapeutic Action of Sulphonal.

Kost (*Archiv. f. exp. Path. und Pharm.*, t. xxxi, fasc. 1) reports nearly two hundred cases in which he employed sulphonal as a hypnotic. He prescribes it especially for combatting nervous and febrile insomnia and that form accompanying certain physical disorders. The dose for a man is from two to three grammes, for a woman one gramme. Larger doses have given rise to serious after effects, such as vomiting, diarrhea, followed by obstinate constipation, heaviness of the head, paralysis, painful micturition and albuminuria. According to experiments instituted by Kost, these deleterious effects are to be attributed to alterations of the kidneys and not to educts of sulphonal, and they are the result only of large doses. He concludes with the following observations:

(1) The maximum dose for a man is from two to three grammes, for a woman one gramme; these doses ought not to be exceeded except to combat intense excitement.

(2) When one is obliged to continue the use of the drug for a prolonged period, intermissions of several days should be made from time to time.

(3) The drug should be suspended as soon as such symptoms as nausea, vomiting or gastric pain appear.

(4) Administered with these precautions, sulphonal is a harmless drug.

Enteroclysis in the Summer Diarrhea of Children.

Müller (*Therapeutic Gazette*, Nos. 7 and 8, 1893) reports seventy-eight cases of summer diarrhea treated by enteroclysis in conjunction with other hygienic and remedial measures. His conclusions are as follows:

(1) That intestinal irrigation may be considered a valuable adjunct in the methodical treatment of suitable cases of summer diarrhea.

(2) That irrigation with cold or ice-water will lower the temperature of the lower portion of the abdomen by direct refrigeration of the blood mass, and that the procedure is indicated when high temperature lasting for a considerable time endangers life by coagulating the cerebral fluid or cardiac protoplasm, or when accumulation of feces, mucus, etc., in the bowel causes a continued irritation of its mucous membrane.

(3) *That the dangerous effects of the poisonous animal alkaloids are diminished or counteracted or dissipated by irrigation.*

(4) That the influence on the circulatory apparatus is shown by the change in the pulse, which becomes less frequent and stronger.

(5) That systematic enteroclysis results in an amelioration of the symptoms and a shortening of the course of the affection, and will often overcome the semi-paralytic condition of different organs.

(6) That the resistance which the fever offers to its reduction by this method is an index of the gravity or mildness of the case.

(7) That alcoholic stimulants are of importance in the treatment of summer diarrhea of children.

Salicylic Acid as a Vermifuge.

Ozegowski (*Norwing Lekarski*, No. 3, 1893) recommends the use of salicylic acid for the expulsion of tape-worms. On the day preceding the treatment the patient fasts and takes an ounce of castor oil in the evening. On the following morning another half ounce of oil is taken at seven o'clock. Beginning at eight o'clock one gramme of salicylic acid is taken every hour for four hours. If the tape-worm is not expelled within an hour after the fourth dose has been taken, another dose of castor oil is prescribed, when the parasite is generally discharged. Only one failure is reported in twenty cases in which this remedy was employed.

Effects of Piperazine on the Urine.

Wittzack (*Münch. med. Woch.*, 28, 1893) employed piperazine in six patients suffering from the uric acid diathesis, and studied its effect upon the urine. He makes the following observations:

(1) Diuresis was much increased in a patient with gout; the urine was doubled.

(2) The specific gravity was always diminished, as also the acidity of the urine, though it never became neutral.

(3) The appetite was never altered, and no constitutional disturbance could be attributed to the drug.

(4) Subcutaneously it caused pain, induration and twice abscesses, in spite of strict antisepsis, even when less than a grain was so administered.

(5) No differences were noticed between the action of the base and salt, but the latter is more constant and less hygroscopic.

(6) To produce effect fifteen grains must be given daily for two weeks or more.

Improvement followed in all cases after the use of the drug. The author, from chemical experimentation, shows that piperazine does not possess actual solvent properties, but collects the uric acid in the body, combines with it, and then escapes in the urine. He further says that the hygroscopic property of the drug should be considered, since some samples contain as much as 50 per cent. of water, which circumstance interferes with their successful use.

Strontium Bromide in the Treatment of Chronic Epilepsy.

Berkley (*Johns Hopkins' Hosp. Bull.*, May, 1893) has employed this remedy in eleven selected cases of chronic epilepsy occurring in the City Insane Asylum of Baltimore. The cases were for the most part typical, and the majority were of many years' duration. In order to compare the results obtained with strontium bromide with those obtained with other remedies, the patients were allowed to remain for a month on the "house epileptic mixture," which contains gr. xx. of sodium bromide and gr. xv. of potassium iodide to the tablespoonful, and which was given in that dose three times a day. At the end of the month a solution of natrium chloride (gr. x. to ½ oz. of water) was substituted for the bromide of strontium and was continued ten days. During this time the number of attacks increased greatly, and elicited the remark from one of the attendants that "they fall around like sheep." It was also observed that at the end of the ten days the patients were generally in a decidedly worse mental and physical condition than under the sodium bromide. At this time pure bromide of strontium was administered in doses of 21½ grs. three times daily for a period of three weeks, when the supply of the salt being exhausted the patients were allowed to go without special

treatment. In ten days, however, a new supply of the strontium salt was obtained, and was administered in doses of 12 grs. three times daily for two months. For the month during which the sodium bromide solution was employed the total number of fits was 81, while during the continuous use of the strontium bromide the number of fits for the first month was 55, and for the second month 64. The author states that the results were vitiated by the non-amenability of three patients and the inclusion of one patient who had a gross lesion of the cerebrum. The writer concludes that the bromide of strontium has claims to considerably greater merit in lessening the number of epileptic seizures than its companion salt, the bromide of sodium, and that the improved mental condition, lessened somnolence and excitability observed under the strontium treatment are of far greater moment than the actual diminution of the fits. Another important advantage of the bromide of strontium over other bromides consisted in the continuous absence of the acne rash.

Trional.

Koppers (*Inaug. Dissert.*, Würzburg, 1893) describes his observations on the effects of trional in several cases. He confirms the well-known narcotic effects, placing trional above sulphonal, amylenehydrate, chloralamide, bromides and chloral, though he found that where severe pain is present it does not possess the virtues of morphine. The author points out that it is also valuable in diminishing night-sweats (four to eight grains sufficing), a property not hitherto described. As regards after-effects, the author prefers it to sulphonal, but has observed that in one of his patients suffering from heart disease a diminution of blood pressure was caused, necessitating caution in its further use. No other unpleasant symptoms were observed, and sleep was always induced very rapidly, generally in about half an hour.

Salophen.

Gerhardt (*Inaug. Dissert.*, Jena, 1893), after giving a description of salophen, which chemically consists of 50.9 per cent. of salicylic acid and 49.1 per cent. acetyl paramidophenal, refers to its insolubility in water, tastelessness, and the fact that it is again reduced to its two component factors by the action of the pancreatic and intestinal secretions. If given in large quantities, the unaltered salophen is excreted with the feces and by the skin, where its presence in small crystals has been demonstrated. As regards its medicinal action, the joint experiences of Guttmann, Frohlich, Flint, Hitschmann and Koch tend to show that in acute rheumatism it is equal to salicylic acid, and preferable on account of its tastelessness. The author watched its action in sixteen consecutive cases, and noticed a decided effect when given in quantities of one to one and a half drachms daily and in acute cases; on the other hand, relapses and rheumatism in fresh joints supervened frequently, but these generally again yielded to the fresh use of the drug. The possibility of endocarditis is not excluded by its use. The advantages were its absolute harmlessness and the absence of excessive perspirations or tinnitus. It was well borne by the stomach, causing neither sickness nor loss of appetite. Less efficacious it was found to be in cases of some weeks' standing, and in chronic cases it was no more successful than other drugs. Salophen is, therefore, particularly indicated when gastric sensitiveness is present, when other drugs have failed, or when, as in children and others, the use of salicin, etc., is contraindicated on account of its unpleasant taste.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D.,

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Long-continued Hemorrhage in the Latter Half of Pregnancy, Due to Detachment of a Normally-situated Placenta, and Accompanied by Septic Intoxication, with a Report of Two Cases.

Hirst (*Medical News*, July 22, 1893) reports two cases of hemorrhage from detachment of a normally-situated placenta, both occurring at about the sixth month, and evidencing the absorption of septic products from the slowly-decomposing clots which had formed between the layers of the decidua vera.

The first case had been bleeding profusely from the genital passage for two or three weeks. She was profoundly reduced from loss of blood and had considerable fever. The child was still alive. Diagnosing premature detachment of the placenta, in view of the alarming condition of the woman, Hirst determined to terminate the pregnancy. The placenta was found to be attacked at the fundus, with one-quarter of its maternal surface covered with blood-clot dark in color and firm as liver in consistence. Clots extended along the membranes to and beyond their point of rupture. The patient recovered after exhibiting symptoms of septicemia for a time.

The second case had been bleeding for six weeks, despite careful rest in bed, with opium and viburnum during the last four weeks. She had a septic temperature during this time. Although the fetus was still alive it was determined to terminate the pregnancy. The placenta was found attacked at the fundus. About one-eighth of its surface was degenerated from previous separation. A long, decomposing clot was attached to this margin. The woman made a good recovery.

These are of especial interest inasmuch as the text-books in common use do not describe this condition, and the general practitioner, unless he had seen and recognized such an accident, would be at a loss in handling his case.

Hemorrhage from the Umbilicus.

Lefour (*Journal de Médicine de Bordeaux*, No. 3, 1893) reports the following interesting case: The mother, a IV-para, had lost her first two children from umbilical hemorrhage, upon whose umbilical cords endarteritis could be recognized microscopically. The fourth child, four days after delivery, was observed to have a flow of bloody fluid from the ligated end of its cord, and finally a violent hemorrhage occurred. Lefour applied a modification of the Emile Dubois' method, sticking five sterilized needles through the cord behind the ligature parallel in a transverse direction, beneath which he bound an elastic cord. After a few days the remains of the cord dropped off, leaving an ulcerated surface that soon healed.

The Prophylaxis of Puerperal Fever.

Leopold and Goldberg (*Deutsche medicinische Wochenschrift*, No. 13, 1892) have investigated the causation and prophylaxis of puerperal fever in the material of the Royal Maternity Hospital in Dresden during the last six years. They have arrived at the conclusion that the puerperal infection is caused by the introduction of septic material into the genital tract from without by the exploring finger of the examiner. They earnestly plead for the restriction of vaginal examination to abnormal cases or as an aid to abdominal palpation to confirm the diagnosis previously gained by the abdominal method.

Leopold and Goldberg consider abdominal palpation safer, more reliable and satisfactory than vaginal exploration. They also have found that prophylactic vaginal douches in normal labor are not only of no benefit, but that they are harmful, and should be abandoned in the majority of cases. Vaginal douches are indicated in all operative cases, or in those cases in which we have reason to believe that infection has already taken place. Before making the vaginal examination the external genitals are to be thoroughly disinfected. Their tables show conclusively that the cases in which no vaginal douches were used have passed through the best puerperium.

Contribution to the Pathology of the Placenta.

Meola, Felice (*Annali di Ostetricia*, December, 1891), refers to a number of cases of diseased placentæ which he subjected to macroscopic and microscopic examination. He found the following lesions: Recent or sclerotic inflammations, hemorrhages, degenerations, especially hyaline, necrotic processes, especially in the epithelium of the villi, transformation of newly-formed connective tissue into cartilaginous and osseous tissues, calcareous infiltration. He believes that many of the morbid processes so variously interpreted by the different authors are all referable to an inflammatory process. This inflammatory process, once admitted, should be termed placentitis rather than endometritis, since it affects all the component elements of the placenta. It may occur at any period of pregnancy, even at its close, causing the death of the fully-developed fetus. The arrest of development, the malnutrition and death of the fetus are in direct relation to the extent and severity of the placental lesions. If the inflammatory process does not develop in the early stages of gestation, causing abortion, it usually has a slow course and gives rise to few clinical symptoms, which will account for its non-recognition in the majority of cases.

The Influence of Sex by Procreation.

Keefe (*New York Medical Journal*, July 1, 1892) considers the modern theories in regard to the influence upon the sex of the product of conception by the act of procreation, and agrees in general with that of Terry, who regards the sex of the child as dependent upon the condition of the parents at the time of the conception. According to Terry, the condition of the greater sexual excitement of one of the parties is decisive for the production of the opposite sex. Accordingly, a female child would be produced when the male was in the condition of greatest sexual excitement and conversely.

Keefe alters this hypothesis only so far as that he believes the sexual excitement has no influence, but regards the greater degree of physical strength and health as the deciding influence. The party to the act who is physically the stronger influences the production of the opposite sex. Accordingly he advises, when a child of a certain sex is desired, the party to the intercourse of the opposite

sex is to be strengthened, while the party of the same sex is to be weakened by dieting.

In 311 births in which Keefe has made observation regarding this theory the following has been obtained: The cases are divided into three groups:

(1) Those in which both parties are equally strong and healthy.

(2) Those in which the male is the stronger party.

(3) Those in which the female is the stronger party.

In the first group 49.2 per cent. of the births were male children; in the second, 25.6 per cent.; in the third, 92.64 per cent.

GYNECOLOGY

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D., AND CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D.

Surgical Treatment of Fibroid Tumors.

Martin (*American Gynecological Journal*, May, 1893), groups the surgical procedures for the relief of fibroid tumors of the uterus under the following heads: (1) Removal of the ovaries to establish an early menopause. (2) Removal of the tumor per vaginam. (3) Removal of the tumor through an abdominal incision; (*a*) removal of the tumor without the uterus; (*b*) removal of the tumor with the uterus. The first method is adapted to that class of medium or small tumors where the growth is slow and the tumor is hard and symmetrical, and there is menorrhagia without metrorrhagia. Removal through the vagina can only be done when the tumor is not larger than a hen's egg. Unless the tumors are small and pedunculated, the operation is as liable to prove fatal as removal of the uterus; and if the tumors are large and more or less incorporated with the uterine walls, their removal leaves the uterus in an abnormal and mutilated condition, and should a portion of tumor be left it would continue to grow. As regards removal through abdominal incision, only occasionally is a tumor so situated that it can be removed separate from the uterus. The great majority of the cases require removal of the uterus together with the fibroid mass. Martin prefers in favorable cases to retain the cervix and treat the stump intra-peritoneally because a stronger pelvic floor results, and the vagina is left in a better condition than if the cervix had been removed. Fixation of the stump in the abdominal wound is objectionable, as free dilatation of the bladder is thus interfered with and convalescence is prolonged. The author does not favor Byford's method.

The Pathology and Treatment of Injuries of the Pelvic Floor.

Skene (*American Gynecological Journal*, May, 1893) divides all the injuries that are sustained in the pelvic floor by labor into two classes: (1) Those that occur in the median line of the floor and in a direction corresponding with the

axis of the pelvis, and (2) those injuries which occur above the floor itself—transverse, internal lacerations.

The former occur in various forms and degrees: (*a*) a solution of continuity of all the tissues, extending from the posterior commissure to the sphincter ani; (*b*) the same injury as the above, plus laceration of the sphincter. To these Skene would add subcutaneous lacerations of the muscles and fascia in the median line usually limited to the transversus perinei muscle and fascia, but in rare cases involving the anal sphincter. The so-called rectocele which is said to follow these injuries the author believes not to be a rectocele at all, but a prolapse of the vaginal wall and a varicose condition of the veins lying between the vagina and rectum, just within or above the pelvic floor.

In the treatment of these conditions the author suggests for injuries in the median line, extending from the posterior commissure to and including all the tissues of the pelvic floor at this point, the simple removal of the scar tissue, thus vivifying the ends of the muscles and fascia that have been divided. The vaginal wall is freed and forms the inner surface of the pelvic floor, while the lateral surfaces are united with sutures. In complete lacerations involving the sphincter ani he follows closely Emmet's operation. For subcutaneous lacerations in the median line a form of flap-splitting operation is indicated.

Dangers Following Total Extirpation of the Uterus per Vaginam.

Jessett (*The Lancet*, Loudon, July 29, 1893) regards the dangers following total extirpation of the uterus by the vaginal method as neither few nor trivial.

(1) Intestinal obstruction has occurred in several instances after vaginal hysterectomy, the result of adhesions of a loop of intestine to the edges of the wound through which the removal of the uterus was accomplished, causing distention and bending of the gut above the point of adhesion. All of the cases reported have proved fatal; in each, death appeared to be due, primarily, to exhaustion.

(2) A second source of danger is met with chiefly in those cases in which the disease has extended somewhat laterally, from the risk of either dividing the ureters, or including them in the ligature, or forceps applied to the broad ligament to arrest hemorrhage. Several such cases are recorded.

(3) Vesico-vaginal, or recto-vaginal, fistulæ are by no means so rare as might be supposed, after total extirpation of the uterus. Vesico-vaginal fistulæ are especially liable to occur in those cases in which the disease is somewhat extensive, and the pelvis contracted, necessitating considerable force to enucleate the uterus. Often the opening is so high up that it is difficult to locate the exact seat of the urinary fistula, and in these cases the hope of closing the fistula must be very small.

(4) Another source of danger is peritonitis, especially in those cases in which the parts are of necessity much dragged and torn.

(5) Sepsis is answerable for many of the fatal cases.

(6) Lastly, severe and even alarming hemorrhage often takes place.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Contributions to the Study of Intestinal Bacteria.

Gilbert and Lyon (*Sem. Med.*, 1893, No. 17) studied the intestinal excretions of fifteen healthy men, and arrived at the well-founded conclusion that under the name of "bacterium coli commune" a considerable number of different microörganisms have been described. They were able to determine individuals which were motile and others non-motile; some which produced coagulation and others which did not; some which produced indol, and some which did not. From this confusion they insist that only such forms shall be called "bacterium coli commune" as coagulate milk, ferment sugar and produce indol in substances containing peptone.

The Demonstration of Few Cholera Germs in Large Quantities of Drinking Water.

Arens (*Münchener med. Wochenschrift*, No. 10). These investigations of Arens were made with the object of detecting the germs when present in so small a number as to be easily overlooked, or when the ordinary water bacteria were present in too great numbers to allow the few cholera colonies to be observed.

A pancreas bouillon, to which is added 1 per cent. of Whitte's peptone, is used, and to it Arens suggests the addition of 0.05–0.08 potassium hydrate, as strong alkalinity favors the development of cholera spirilli. The further prosecution of the method is the same as that suggested by Dahmen (*Centralb. f. Bakt. u. Parasitunk*, Bd. VIII, S. 40), and this improvement increases its delicacy so much as to make possible the detection of two of the microörganisms in 5 c.cm. of water.

Coccidial Tumors from the Small Intestine of the Sheep.

Ed. Nocard (*Journal of Pathology and Bacteriology*, Vol. I, No. 4, 1893). A piece of the intestine examined, 20 cm. in length, contained seven tumors. They were true polypi, with slender pedicles, varying in size from a pea to a hazelnut. The sections of these tumors showed them to be papillomatous, consisting of the various elements of the mucous membrane hypertrophied. The villi and glands are increased to more than ten times their original size, and were infiltrated with a considerable number of small ovoid refractile bodies, with a double contour. On further examination one sees that a large number of glandular epithelial cells are invaded by what appears to be parasites; these represent the appearance of rounded granular bodies, which, gradually increasing in size, crowd the nucleus into a corner of the cells, distorting it so much that sometimes one finds nothing more than a sort of crescent, which always takes up carmine energetically.

Parasitic Protozoa in Cancerous Tumors.

Ruffer and Plimmer (*Journal of Pathology and Bacteriology*, No. 4, Vol. 1, June, 1893). In this article the arguments brought against the existence of the cancer protozoa, described in Vol 1, 1892, p. 198 of the same journal, are discussed, and the views there expressed defended. In continuation of the study of these parasites, a brief account of their life histories is given.

The particular form of parasite described by these writers makes its first appearance in the nucleus of the cell as a small, round body, staining well with various dyes. In specimens fixed with Loà's solution, and stained with Biondi's triple stain, it appears as a reddish body, but in all it can be seen that this body is absolutely independent of the other part of the nucleus. In other words, it is not part of the nucleus, but is a *foreign body lying in the nucleus*. The nucleus in infected cells generally resents this invasion by becoming darker and smaller, more condensed, so to speak. The chromatin network of the nucleus disappears, while its staining reactions also change. With hematoxylon it becomes much darker, whilst with the triple stain it assumes a dirty, greenish-brown homogeneous color. At other times, however, the nucleus does not apparently greatly resent the presence of the parasite. The latter may be single or double, or a whole cluster may be present in the nucleus.

The next change is that part, or the whole of the parasite, becomes clearer and lighter, whilst in a still further stage a tiny nucleus makes its appearance in the centre, and at the same time a distinct capsule can be made out around the parasite. The nucleus of one cancer cell may thus be invaded by a number of minute parasites, each one with its little nucleus, protoplasm and capsule.

In other cases, especially when the parasite is single, it may acquire a goodly size, and become fully developed before it leaves the nucleus. Whether single or multiple, however, the parasites approach the periphery of the nucleus and escape into the protoplasm of the cell. When multiple, the walls of the nucleus actually gives way, and the contents are discharged. The young or adult parasites now assume the form of what may be called the normal, full-grown protozoön, which is found in carcinoma of the breast. It consists essentially of:

(1) A central, round, oval or slightly irregular nucleus, sometimes connected by fine, delicate rays with the periphery;

(2) A variable amount of surrounding protoplasm, almost, if not quite, filling up the capsule;

(3) The double contoured capsule surrounding the whole.

When one of the parasites has found its way into the protoplasm of a cell, it generally grows uutil it may become so large as to push the nucleus to one side, so that this latter atrophies.

It is also asserted that after the escape of the parasite, the nucleus heals up in a wonderful manner, and exhibits hardly any pathological changes.

DERMATOLOGY

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

ASSISTED BY

M. B. HARTZELL, M.D.

The Removal of Tattoo-marks.

Ohmann-Dumesnil recommends (*New York Medical Journal*, May 20, 1893) the following procedure for the removal of tattoo-marks: After thorough cleansing of the skin with soap and water the tattooed design is tattooed with glycerole of papoid. A repetition of the process may be necessary, unless the tattooing is very carefully done. An inflammatory reaction, such as follows ordinary tattooing, results.

Psorospermose Folliculaire Vegetante (Darier).

Pawloff reports (*Ergänzungshefte zurn Archiv. f. Dermatologie u. Syphilis*, II Heft, 1893) two new cases of this interesting malady, both occurring in women. As the result of microscopical examination of excised lesions he is of the opinion that the bodies regarded by Darier as psorosperms are not parasites, but epithelial cells which have undergone a process of abnormal cornification, agreeing in this respect with Miethke and Buzzi. The author likewise expresses the opinion that the cause of the disease is to be sought in a complicated, general disturbance of the organism, of which the skin alterations are but one expression; and that the cause of this general disturbance is likely to be found in the nervous system.

Variations in the Toxicity of Blood-serum in Cutaneous Affections.

Quinquaud, in a communication to the Societé Francaise de Dermatologie et de Syphiligraphie (*Annales de Dermatologie et de Syphiligraphie*, No. 5, 1893), gives the result of his experiments upon rabbits to determine the alterations in the blood-serum in cutaneous diseases; his conclusions are the following:

(1) In all eruptions of renal origin the blood-serum kills in doses of 5–6 c.c. per kilogram of weight of the animal.

(2) Frequently, in cutaneous affections which coincide with albuminuria, the serum is hypertoxic, but it is not infrequently observed that the serum may be normal as regards toxicity, although albuminuria may be present. Hypertoxicity exists, however, whenever there is renal insufficiency.

(3) In all dermatitides with great exfoliation the serum is hypertoxic in the first phases of their evolution.

(4) In acute pemphigus, in the infectious erythemata the hypertoxicity is extreme and truly remarkable, while the toxicity is normal, or even below normal, in certain forms of cachectic pemphigus.

(5) In discriminated or privileged eczemas the serum acquires great toxicity. At the moment of the attacks one obtains serum which kills in doses of three c.c. per kilogram, but the toxicity decreases, and in the intervals it becomes hyptoxic.

The Saprophytic Existence of the Trichophyton.

Sabouraud (*Annales de Dermatologie et de Syphiligraphie*, No. 5, 1893), having succeeded in cultivating the trichophyton upon vegetable mould, decaying wood, and in a culture-liquid free from every trace of organic matter, suggests the possibility that this fungus may have a saprophytic, as well as a parasitic, existence.

Chronic Miliaria Palmaris et Plantaris.

Crocker reports (*British Journal of Dermatology*, June, 1893) a case of miliaria of the palms and soles, occurring in a woman 56 years old, which had lasted for five years. It began when the patient was suffering from bronchitis, and was perspiring very profusely. The lesions present were of three kinds: (1) Small pustules with narrow areola; (2) minute brownish, horny plaques; (3) superficial depressions with scaly rim where the plaques had been cast off.

On the Influence of Solar Rays on the Skin.

Borwles, in considering this subject (*British Journal of Dermatology*, August, 1893), arrives at the following conclusions:

That heat as such heat is not the cause of sunburn.

That there is strong evidence for believing that it is caused by the violet or *ultra* violet rays of light. . . .

That sunburn and snow-blindness arise from similar causes, and that sunstroke may be associated with them.

That rays from the electric light produce much the same result as sun rays reflected from snow.

Acute Iodism.

Russell reports (*Medical Record* New York, August 12, 1893) a case of acute iodism terminating fatally. The patient was a man 68 years old, suffering from rheumatoid arthritis, for which he was given a mixture containing syrup of the iodide of iron and iodide of potassium, each drachm containing about four minims of the former, and two grains of the latter. One teaspoonful was given on the first day, two on the second, and two on the third, when the evidences of iodism were so marked that the mixture was discontinued. Besides intense coryza and conjunctival congestion bullæ were present on the face, scalp, neck, chest, and upper and lower extremities, some as large as a silver dollar, filled with sanious fluid. The eyelids were ulcerated; the nostrils were completely filled with crusts; the mucous membrane of the mouth and throat was inflamed; the voice became husky, and finally disappeared, and death occurred upon the tenth day from inanition and a low grade of pneumonia.

BOOK NOTICES.

BRAIN SURGERY. By M. ALLEN STARR, M.D., Ph.D., Professor of Diseases of the Mind and Nervous System, College of Physicians and Surgeons, Medical Department of Columbia College, New York, etc. With Fifty-nine Illustrations. New York: William Wood & Company.

During the past few years brain surgery has been passing through the experimental stage. The activity in this field has been very great. A large number of carefully-studied cases are now on record, so that at this time certain more or less definite deductions may be made in the matter of diagnosis, localization, the selection of proper cases for operation, technique, etc.

Dr. Starr has undertaken the task of sifting the vast literature in order to place before the profession a working basis for the important subject of cerebral surgery. The large personal experience of the author has particularly fitted him to exercise a critical judgment in this work.

The subjects of localization and cranio-cerebral topography, so essential to a correct diagnosis, are briefly considered. The operative treatment of the various forms of epilepsy has received considerable attention. Numerous cases are cited from the author's practice and from literature. This is much more satisfactory than the mere dogmatic statement of facts. The result of this study shows that the majority of cases that have been trephined for epilepsy have not been permanently cured. Still, in view of the fact that a certain number have been relieved, and as the danger of the operation *per se* is very trifling, it is recommended to interfere surgically, after having made a clear statement to the patient of the uncertain result of the operation and the slight risk that will be necessary to take.

Trephining for imbecility in cases of microcephalus is recommended as an exploratory operation in view of the fact that in a certain number of instances conditions that were amenable to successful interference have been recorded. The difficulty of accurately locating hemorrhage must prevent operation being frequently undertaken for this condition. Some thirty cases are reported, however, which were successfully treated by trephining. Abscess of the brain, of course, demands operation as soon as the diagnosis is made and the location determined.

Cases exhibiting symptoms of cerebral tumors situated on the cortex should be trephined, after having excluded syphilis, by the therapeutic test if necessary, and studying the symptoms for some time.

Brief chapters on trephining for hydrocephalus, for insanity and for headache follow, and a description of the operation closes the volume.

Dr. Starr has contributed a valuable addition to medical literature, and his book will be welcomed by all interested in this subject.

DISEASES OF THE EYE. A PRACTICAL TREATISE FOR STUDENTS OF OPHTHALMOLOGY. By GEORGE A. BERRY, M.B., F.R.C.S. Ed., Ophthalmic Surgeon, Edinburgh Royal Infirmary; Senior Surgeon, Edinburgh Eye Dispensary; Lecturer on Ophthalmology, Royal College of Surgeons, Edinburgh. Second edition, revised and enlarged, with colored illustrations from original drawings. Philadelphia: Lea Brothers & Co., 1893.

Comparison of the first edition of this work, which appeared in 1889, with the present revision, shows a marked improvement in the removal of many of the more obvious defects. Numerous new drawings and diagrams have been introduced, most of which, especially those that are illustrative of fundus changes, are fairly good and can be relied upon. Unfortunately, many of the cuts that are designative of external changes, are faulty in mechanical construction, grotesque in general appearance, and often only determinate as to their intended meaning by reference to the signatures and legends.

The rearrangement of the subject-matter into more logical form is to be commended, though it must be acknowledged that the proper theoretical and practical order of sequence is far from what one would ordinarily expect in a book that is intended for instructive purposes. The greatest drawback, however, is the non-fulfillment of the promise that the work is intended as "a practical treatise for students:" as such, it can never be a success. Supposing too much preliminary knowledge in general optics, anatomy, physiology and pathology, and delving too deeply into abstruse and unpractical mathematical problems and algebraic formulæ, it becomes illogical in its requirements. Ignoring many of the best and the most commonplace empirical plans of differential diagnosis, and presupposing too much in the finer differentiations in the more delicate correction of refraction-error and consequent want of muscle-balance, it fails to give the reader what is really due to his task of perusal. Consequently, whilst individually and questionably assertive without giving any definite views of consensus of opinion as to the correctness of still doubtful and moot points in etiology and therapy, it, as now written, cannot be conscientiously recommended to any inquiring and uninformed student.

Excellent in its make-up, beautiful in appearance, peculiarly free from errata of all kind, and replete with the best sayings and the most important findings of many of the European authors and investigators, the work is destined to remain long with the educated ophthalmologist as an interesting and erudite friend and companion whose sayings can be judiciously weighed and enjoyed, but as a safe guide and a consummate helper for the untrained and the too receptive mind of the uninitiated, it must be confessed that it is far from effecting its intended purpose.

Our hope is to receive a broader, a more representative, and a more practical exposition of the subject for those who are still to be taught and for those whose skill is yet to be trained, from one whom we have learned in other ways to regard as a master in his art.

NAPHEY'S MODERN THERAPEUTICS. Vol. II. General Surgery, Obstetrics and Gynecology. By ALLEN J. SMITH, M.D., and AUBREY J. DAVIS, M.D. Philadelphia: P. Blakiston, Son & Co., 1893.

This volume is on a par with Vol. I. of the same work, which is much improved over the former editions. It is plainly impossible, as well as out of place, to criticise the statements made in the book, the intention of the authors being to give a complete digest of the recent writings on the subjects embraced, while of course they are not responsible for their accuracy. This task in the present state of medical literature is Herculean. They have searched the journals of all countries and culled the best from them. The volume is what it aims to be, a resumé of the literature of the subjects of which it treats. As such it can be confidently recommended to our readers.

MANUAL OF CHEMISTRY: A TEXT-BOOK ESPECIALLY ADAPTED FOR STUDENTS OF MEDICINE AND PHARMACY. By W. SIMON, Ph.D., M.D., Professor of Chemistry and Toxicology in the College of Physicians and Surgeons, Baltimore, and Professor of Chemistry in the Maryland College of Pharmacy. Fourth Edition. Philadelphia: Lea Brothers & Co., 1893.

The demand for a fourth edition within a year of the appearance of the third is sufficient guarantee that this work has met with general approval.

The first part of the book deals with that part of physics which is directly related to chemistry, and which is essential to the proper understanding of the latter. Part second discusses the fundamental principles of chemistry. Here the student is gradually prepared for the more serious parts of the work. Parts three and four consider the non-metals and the metals respectively, together with their description, mode of preparation, occurrence in nature, etc. The fifth part is devoted to analytical chemistry. After a description of the apparatus and reagents required, a general course on the examination of chemical compounds is outlined. Part six is devoted to organic chemistry. Here the student is sufficiently familiarized with the carbon compounds to enable him to satisfactorily comprehend the subject. The last part deals with physiologic chemistry. While the other portions of the work are adapted to the needs of both the student of medicine and of pharmacy, this section was prepared especially for the former. It includes the examination of the various fluids of the body, the methods of testing milk, and a study of urine in health and disease.

It will be seen that the course outlined is a progressive one. Seven colored plates illustrate fifty-six of the most important chemical reactions. An important feature of the work is the consideration of every chemical substance contained in the United States Pharmacopœia. Physicians, as well as students, will find this a useful work for either study or reference.

THE DISEASES OF THE NERVOUS SYSTEM: A TEXT-BOOK FOR PHYSICIANS AND STUDENTS. By LUDWIG HIRT. Translated by AUGUST HOCH, assisted by FRANK R. SMITH, A.M. (Cantab.), M.D., with an introduction by WILLIAM OSLER, M.D., F.R.C.P. Illustrated. New York: D. Appleton & Co., 1893.

Although several excellent treatises upon diseases of the nervous system have appeared recently, it is still refreshing to review a work which offers something new in the way of classification, illustrations and subject matter. The subject has been grouped under three grand divisions. The first treats of diseases of the brain and its membranes, including those of the cranial nerves; the second, of diseases of the spinal meninges, diseases of the spinal nerves, and diseases of the substance of the cord; the third grand division embraces diseases of the general nervous system, and under this caption are included, first, the diseases of the general nervous system without any recognizable anatomical basis, and which are designated the "Functional Neuroses" —chorea, tetany, paralysis agitans, neurasthenia, hysteria, epilepsy and hystero-epilepsy; and secondly, the diseases of the general nervous system with known anatomical basis, and in this section are placed multiple sclerosis, locomotor ataxia, paretic dementia, and syphilis of the general nervous system. The book closes with an appendix on the intoxication paralyses. The most striking feature of the classification is the relegation of locomotor ataxia and paretic dementia to the category of general nervous diseases. This deviation from the usual course the author has commented on in the preface, and believes will meet with sharp criticism; but the more one studies these two affections the greater seems the need of such a classification. Doubtless it is easier for the didactic lecturer to treat of locomotor ataxia as a disease of the posterior columns of the spinal cord, and paretic dementia as a disease of the cerebral cortex, but from a clinical and pathological standpoint Hirt's classification makes easier a comprehension of the intimate relation which often obtains between these common affections.

The causation of diseases, the cure of which is difficult or quite impossible, should become a subject of prime importance, but the author seems scarcely to have given the attention to etiology which its position in a work of fair scope would justify. Thus in the chapter on neuralgia (trifacial) no mention is made of anemia or reflex irritation, as from the eyes or nose, as a possible cause; in the discussion of sciatica no reference is made of rheumatism as a frequent cause; the relation between chronic nephritis and apoplexy is not intimated, nor is any note made of gastrectasis or ablation of the thyroid as causes of tetany. In two instances, at least, indifference to etiology has led the author into what many writers would regard as errors of classification. For instance, although general infection is intimated as a cause of chorea, the disease itself is classified with the neuroses which are wont to run their course without any essential implication of the general organism; the same group is made to include tetany, which many able neurologists believe to be of toxic origin. These defects, however, seem insignificant when the work is viewed as a whole, and the clear, concise and original manner in which the subject has been handled

will leave the book with but few rivals. Numerous illustrations, many of which are original, elucidate the text. The translators deserve especial credit for rendering easy access to the writings of the distinguished author, and also for the manner in which they have accomplished the task.

DISEASES OF THE RECTUM AND ANUS, THEIR PATHOLOGY, DIAGNOSIS AND TREATMENT. By CHAS. B. KELSEY, A.M., M.D., Professor of Diseases of the Rectum at the New York Post-Graduate Medical School and Hospital, etc. Fourth Edition, Revised and Enlarged. New York: William Wood & Company.

The fourth edition of this standard work has recently appeared. It is so familiar to the profession that a discussion of the text seems unnecessary. The present edition has been thoroughly revised, and the author has added much that he has learned by experience and from the labors of others, thus bringing the contents quite up to date. The work is a careful and thoughtful presentation of the subjects indicated in the title, and the teachings may be followed with confidence. The author has modified his views somewhat in regard to the value of hypodermatic injections of carbolic acid in hemorrhoids. He has observed that many of the patients supposed to have been cured, have returned to be again cured by some more lasting method. While the value of the ligature is not underestimated, a preference is expressed for the clamp and cautery.

It is evident that the book is the outcome of a large experience, as it bears evidence of practical observation. The value of such a work over one that is a mere compilation from current literature will be appreciated by those in practice who will have occasion to follow its recommendations. The book is freely illustrated and two colored plates are added.

MODERN GYNECOLOGY. By CHARLES H. BUSHONG, M.D. New York: E. B. West, 1893.

This is a neatly bound volume of 374 pages, clearly printed on good paper. The work is divided into seventeen chapters and is concluded by an appendix, which considers the office fixtures, instruments and medicaments necessary for the treatment of gynecological cases. There are 105 illustrations, some of which have been especially prepared for this work. The book has been written in the interest of the general practitioner, and is, therefore, free from confusing descriptions and diagrams of operations. "The effort of this book is to place before the physician a clear, common sense statement of the symptoms of the various diseases of the female sexual organs; to indicate in detail the methods of treatment that can be applied by him, and also to indicate in brief the methods requiring the aid of a specially trained consultant of larger experience. It is as important to be able to appreciate the need of a major operation requiring a surgeon's help as it is

to know the proper remedy to apply when special advice is not required. How many cases of cancer of the cervix might be cured if the physician first consulted knew the importance of the symptoms and acted promptly in having it removed!"

The symptoms of the various diseases have been clearly presented and their treatment outlined in detail. But few extravagant claims are made regarding the benefit to be derived from local applications of various medicinal substances, the use of tampons, pessaries, etc., yet the author is confident that the employment of such measures within certain limits is productive of great good and not infrequently renders unnecessary an operation which seemed imperative. The limitations of this form of treatment are defined as plainly as possible, and the indications for more radical operative procedures are given. The general tone of the work is what is probably styled "conservative," but the advice given is generally sound, the reasoning is logical and the book should prove a safe and valuable guide to the men for whom it was written. It is difficult to justly criticise the tendency of the precepts laid down in a work of this kind. If the general practitioner possessed the experience and judgment of the specialist in these diseases there would be no need for caution, but by reason of his inexperience the recommendation of certain temporizing measures would lead to disaster. For example, the statement made on page 215, in reference to the curative effects of Monsel's solution for deep lacerations of the cervix, while true of some cases, seems a dangerous teaching to spread among a class of men who have not special opportunities for studying these conditions. Such advice being blindly followed "for many months" would doubtless lead to ruin. Epithelioma of the cervix would develop while the physician was waiting for the healing action of the medicine.

The statement occurring on page 308, and repeated on page 309, in reference to the resolution of an abscess deserves notice, as being contrary to the generally accepted idea of the pathology of inflammation. The substitution of various phrases, as "inflamed area," "swelling," etc., will not accord with the context. A few typographical errors are present, but the general merits of the work are many, and it may be recommended as a thorough, practical and valuable guide for the general practitioner.

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UNIVERSITY OF PENNSYLVANIA PRESS,
1516 Chestnut Street,
Philadelphia, Pa.

UNIVERSITY
MEDICAL MAGAZINE

NOVEMBER, 1893.

"HIGHER MEDICAL EDUCATION, THE TRUE INTEREST OF THE PUBLIC AND OF THE PROFESSION."

By William Pepper, M.D., LL.D.,

Provost and Professor of the Theory and Practice of Medicine.

Inaugural Address at the opening of the Four-Year Course of Medical Study in the University of Pennsylvania, October 2, 1893.

Members of the Board of Trustees and of the Medical Faculty of the University of Pennsylvania: Students of the Medical School: Friends of Higher Medical Education:

How relative is our sense of the lapse of time! There are in the prosecution of every great enterprise single and repeated weeks, which days of sustained effort and sleepless nights of anxious thought make appear of well-nigh interminable length. And again, when from the summit of one important advance successfully achieved we look back to earlier heights attained, the elate spirit seems unconscious of time and space. So it is that some of us may feel who sat in this same hall this very day sixteen years ago. We were gathered to celebrate the establishment in the United States, upon a sound and permanent basis, of the advanced system of medical education of which the venerable University of Pennsylvania had been the earliest and the most consistent advocate. We came also to welcome the band of high-minded students whose selection of our higher and more exacting course of study proved their true vocation. As we sat here then we thought of Morgan and of Shippen, and of the lofty purpose which inspired them

[1] The University of Lima, in Peru, was founded in 1551 by Charles V, and in 1553 the University of Mexico. It is not known that instruction in medicine began to be given until a little prior to 1700. In 1707 we learn that there was great complaint in the University of Mexico of the want of a cadaver to read lessons of anatomy over.

when they induced the trustees of the University of Pennsylvania to establish in 1765 the first medical school in North America.[1] We thought of the high standard at first maintained, and of how this was soon gradually and insidiously lowered through unwise competition and culpable neglect; and how after 1811 the debasement of medical education went on more rapidly and recklessly. We thought also of that bitter experience of 1846, when, in accordance with the earnest recommendation of the American Medical Association, the University of Pennsylvania bravely extended her term of study, only to find that, in spite of their specious assurances, not a single one of her rivals emulated her courage; so that after six discouraging years of steadily diminishing classes she sorrowfully abandoned her advanced position. We thought, too, alas! of the long and painful controversy, lasting almost five years, over the proposition to again elevate our standard of medical education, and of how the end had been attained only at the cost of old friendships and of the allegiance of valued associates whose convictions remained unchanged as to the injury that would be worked to the University by the proposed advance. It is with no intention of dwelling upon the unhappy state of medical education and of the medical profession prior to 1877 that I have made these allusions. More than enough was said on this subject in the address I had the honor of delivering on that occasion.[1] Nor do I refer to the earnest opposition the proposed changes then encountered, save to contrast it with the ready acquiescence now experienced by proposals of further and even greater advance. But all of these events and feelings now recur with such vividness to the minds of those of us who were actors in that critical period of American medical history, that it seems incredible that sixteen long years of struggle have intervened between that day and the present. It is, then, to the story of these years, so far as concerns the progress of medical education. and to the details of the plan which goes into actual operation to-day, that I invite your attention. Nor do I fear any criticism in addressing myself especially to the experience and to the present position of the Medical School of the University of Pennsylvania, because it is to her historic prestige and to the ardent loyalty of the great army of her graduates, and not to the work nor the fame of the present Faculty, that is due the fact that her progressive action and its brilliant results did in 1877, and again have done in 1891, more than aught else to decide the fate of higher medical education in America.

The most important reforms aimed at in the changes of 1877 were as follows:[2]

[1] Higher Medical Education, the True Interest of the Public and of the Profession, 1877.
[2] Pepper id. loc., p. 25.

(1) The establishment of a preparatory examination.

(2) The lengthening of the period of collegiate studies to at least three full years.

(3) The careful grading of the courses.

(4) The introduction of ample practical instruction of each student both at the bedside and in laboratories.

(5) The establishment of fixed salaries for the professors, so that they may no longer have any pecuniary interest in the size of their classes.

So familiar have the profession and the public become with the value of thorough medical education that it will scarce be believed that fifteen years ago it was the general custom with the medical schools of the United States to grant a diploma, conveying the full right to practice medicine, to applicants who had been admitted without preliminary examination, and had attended without term examinations two courses of lectures covering about five months each, and had passed a single and final examination conducted by their own teachers, whose emoluments were derived solely from the fees of such students.

Let us note somewhat carefully each one of these grave defects, and how they have been corrected. It will not be doubted by any one that it is the solemn duty of those engaged in the conduct of medical education to see to it that before a student is permitted to enter upon this study he has shown proper aptitude and has already acquired certain fundamental knowledge. It avails nothing to point to the rare illustrious men who have leaped at a few bounds from the ploughshare to the front rank of scientific or judicial eminence, and who have served immemorially as instances to support the fallacies of those who from selfish motives or from ignorant prejudice decry thorough education. Let not the rest of us, only ordinary sons of toil, be misled by the hope of such exceptional careers.

Long experience shows that the future success of the physician is largely influenced by his preliminary training. The adoption of the profession of medicine is not a choice to be made lightly. It is a hardship to students who have been admitted without examination to be dismissed after two or three years because their teachers are not able to supply the fatal defects of early study. It is a more cruel hardship to the community to have turned loose upon them ill-trained physicians, literally wolves with sheep-skin clothing, who by cramming or coaxing, or the cupidity of examiners whose fees will be affected by the result of the examination, have acquired an unmerited diploma.

Yet here, as elsewhere in education, those who desire progress must have a regard for actual conditions and practical possibilities. When the University of Pennsylvania advanced her standard in 1877

it would have been an injury to the community had the possession of a college degree, or an equivalent preparation, been fixed as the condition for admission. The example of Harvard and ourselves demonstrated so forcibly the possibility of establishing moderate preliminary examinations that by 1891, out of 148 medical schools in the United States and Canada, no fewer than 129 had adopted some standard of general qualifications. In most cases, it must be admitted, these preliminary examinations are too low in their exactions and too lax in their enforcement. None the less they have served a good purpose until the development of our colleges and high schools has enabled a wiser order to be established.

The past fifteen years has seen rapid changes in the college system of this country. The battle between the classics and the natural sciences has waged fiercely, and happily both have come out victors. No one here now questions the admission into the college curriculum of the group of biological studies, such as botany and zoölogy and comparative anatomy, any more than we question the importance of maintaining the highest and most thorough training in the classics for those who desire to pursue their study.

But while the college course has for some years been growing more liberal, and while more numerous elective studies have been permitted, it is only recently that we have recognized that its development must be adapted to the requirements of the higher University schools. The standard of requirement for the B. A. degree, and, consequently, that also for entrance to college, were advanced so rapidly that the preparatory schools could not at once adapt themselves to the new order of things. An unreasonable and undesirable increase in the average age on admission to college followed. To acquire the B. A. degree at 22 or 23 years, and subsequently the degree in law or in medicine only at 26 or 27 years, is to postpone unduly entering on practical life. The natural consequence followed, and the medical schools which provided the longest and best courses, and which most earnestly desired the best preliminary training on the part of their students, found that the proportion of these who held degrees from colleges or scientific schools, began to fall off. The difficulty is but a temporary one. The educational systems of Germany, and of Austria, and of France, prove that it is possible to secure liberal training in letters or in science, followed by thorough professional study, and yet so arranged as to permit the student to enter all branches of professional life, or the higher employments of the State, by the age of 24 or 25 years. So with us the school and college systems will rapidly become more uniform, and it will be recognized that the B. A. degree should be obtainable as an average at the age of 20 years, leaving for post-graduate courses the more highly

specialized work, whether in letters, in science, or in pedagogy, which is as truly professional as the courses in medicine, in law, or in theology. We may, however, confidently look forward to the time, as near at hand, when the leading schools of medicine will exact, as the requirement for admission, the possession of a degree from a college or scientific school which has provided adequate instruction in natural science and in biology, or the evidence by examination that the candidate possesses an equivalent preparation.[1] The University of Pennsylvania has the honor of having established the first thoroughly equipped school of biology in this country. Founded chiefly by the generous gifts and scientific labor of Horace Jayne, it has connected with it the great names of Rothrock, of Allen, of Cope, of Billings, and of the immortal Leidy, who lives with us through his undying influence and fame, as truly as though again in the flesh. In the arrangements for the prolonged and elevated curriculum of the medical school, which goes into effect to-day, full recognition has been made of the great value of biological studies as a training for, and indeed a component part of medical education. It was desired not only to enable our own college students to profit by the unequalled advantages of our biological school, but to encourage and incite, by the inducements held out, other colleges to establish similar courses in biology. It is consequently provided: First, that students who have satisfactorily pursued the last two years of the Natural History Course in the College Department of the University of Pennsylvania will be exempted from the preliminary medical examination; and secondly, the important announcement is made that college graduates in arts or in science of this and other approved institutions, who, during their course have devoted to chemico-biological studies, a total of 1248 college hours,[2] may be admitted to the second year of the medical course without an entrance examination. It is with deep gratification that I learn from Dean Marshall that already in this first year a considerable number of students, representing widely distant colleges, have been admitted to our second year under the operation of this provision, thus demonstrating its admirable influence.

Let us not, however, rest content with what we have accomplished: let us remember, even in this hour of abundant satisfaction, that the condition of progress is the state of perpetual discontent; and let us pledge ourselves to institute further and more advanced requirements for admission as soon as the educational development of the country renders this step judicious.

[1] Johns Hopkins University opens its Medical School to-day, and the requirements for admission are as here defined.

[2] For table giving list of studies see College Catalogue, 1893-94.

It is indeed clear that unless this be done, even the considerable prolongation of the curriculum we have effected, would soon show itself insufficient. It will be remembered that one of the worst defects of the former, and now discredited system of medical education, was the ridiculously short period of study required. Before Harvard and the University of Pennsylvania made the first advance and demanded three years of actual attendance on the part of the student, it is literally true that, at most colleges, medical students were required to attend only two courses of lectures, each of less than five months' duration, giving only 115 to 122 days of actual instruction. Specious phrases were then generally, as they still are occasionally, used in reference to a third year of study in a preceptor's office. But the profession and the public have learned that, the element of human nature entering freely into the composition of medical teachers and medical students, no reliance can be placed upon expectations that any arduous or tedious work will be done that is not specifically insisted upon and critically supervised.

I have already spoken of the importance, of the vital necessity, of proper preliminary education. I have spoken of its limitations as to time, and have indicated the importance of including biology in its curriculum. It is not necessary to point out that a course of medical study, in its proper form, is really a continuation of a liberal education. But it must be remembered clearly that it is more than a course of study: it is at the same time the acquisition of an art. So difficult, indeed, is this art, so delicate are the phenomena the student must learn to recognize accurately, that to secure good results and safe equipment, not only must the earlier studies have trained the senses, and especially those of sight and of touch, but long years must be spent in the laboratories of the school and in the wards of the hospital. Note carefully that medical education no longer does consist, and never should have consisted, in the reading by the professor of systematic courses of lectures to bodies of students which might number 2000 as well as 200. A certain amount of such systematic instruction is retained, and we hold that it answers a useful purpose. But the broad basis of modern medical education is the careful training of the individual student at the bedside and in the laboratory.

Medical science waited thousands of years for the discovery of instruments of precision. Sydenham scarcely advanced beyond the point reached by Hippocrates. The centuries between these great observers afflict us with the view of great learning and ceaseless effort lost in the mazes of fruitless speculation. The microscope, organic chemistry, the clinical thermometer, the ophthalmoscope, the scientific study of the pulse, the blood, the urine; auscultation and percussion:

these are the marvellous aids of modern medicine by which the secrets of disease are being surely disclosed, and the rules of preventive and curative medicine surely established. To learn to use these precise methods and these instruments of precision is a slow process; and still slower is the acquisition of a practical knowledge of disease—of its varied physiognomy and the puzzling habits it may wear; of the subtle signs by which the contending forces of the system and of the malady show themselves, and supply indications for our efforts at relief, and guide us in estimating the probable issue of the struggle. To obtain this one must begin while yet a student to live the medical life, to breathe its atmosphere, and to be in daily contact with the details of the art. Not two years of five months, not three of six months, but at least four years of eight months of actual attendance and constant residence are imperatively demanded. So that it is a matter of rejoicing that, when the present advance was decided upon, and announced by the medical faculty of the University, on November 25, 1891, it was subsequently ordered that the length of each session should be increased to the full extent of the academic year.

It must not be supposed that either the advance of 1877, or that of 1891, has been made without great effort and sacrifice. The power of State legislatures and of courts to grant charters and degree-conferring privileges, has been extended recklessly to new institutions, which are often poisonous mushrooms springing up in the rank soil of selfish interests. Nowhere has this been so conspicuous as in the case of medical schools; and calamitous indeed have been the results to the community. The unscrupulous competition for students between these schools, whose numbers are grotesquely excessive in proportion to the population and needs of the country, has been the chief cause of that degradation of medical education which we have had such reason to deplore. In 1877 I showed[1] that while in countries so dissimilar as Brazil and France, there was an average of one medical school to 6,000,000 inhabitants, and in Germany or Great Britain, of one to one and three-quarter millions, the proportion in the United States then stood one to 477,392. I wish it were possible to say that the exposure of this state of things, and the loud protests from physicians and laymen against the wanton multiplication of medical schools, had been productive of any effect in checking the evil. On the contrary, this morbid process has gone on more virulently than ever; and in the twelve years, from 1878 to 1889 inclusive, no fewer than sixty new medical schools were chartered. Fortunately, as with all other hastily begotten and imperfectly vitalized organisms, our new medical schools are apt to be short-lived. It is probable that, first and last, there have

[1] Id. loc., Table II—V, p. 35.

been established in the United States as many as 260 medical schools; but at present I am happy to state that I have been able, after protracted and earnest efforts through correspondence conducted by my efficient associate, Dr. Burr, to demonstrate the existence of only 140, a number sufficient, however, to keep the proportion of school to population up to 1 : 440,150. Astonishing as has been the growth of population in the United States during the past few decades, it is impossible to avoid the reflection as to the proportions this increase might have attained had it not been for the restraining influence exerted by the brood of physicians, unqualified in all save the license to practice, who have been spawned upon the public by the more unworthy of these institutions.

That there is nothing in the recent changes in the methods of medical education to justify such continued creation of medical schools is shown conclusively by a table I have prepared, from which it is seen that in other countries, almost without an exception, the number of inhabitants for each medical school is greater now than it was in 1877. Nor can it longer be maintained that it is the sparsely-settled state of our territory that explains and justifies the prodigious number of our medical schools. In Brazil there is now but one medical school for every 7,001,167 inhabitants; and in Russia, but one for every 14,403,317; while in New York State, with 6,000,000 population, there are fourteen medical schools, or one for every 428,418; in Missouri, with 2,679,184 population, there are thirteen, or one to every 206,091; and in that vigorous community of Ohio, numbering 3,672,316, there are, I believe, in actual existence, no less than nineteen medical schools, or one to every 193,279.

It is true that many of these schools have but small numbers of students in attendance. In each of thirty-nine schools there were in 1888–89 less than fifty students altogether. It would be well if this circumstance evidenced a heroic devotion to medical science on the part of its faculty rather than an appreciation of the personal advantages to be derived from the notoriety attaching to any professorial position. But at least the statistics justify the inference that the most is made of the few students, by admitting all of them to graduation; a course which my tender regard for medical students compels me to admire, but which candor forces me to admit is not emulated here, since about one-third of the matriculates in the medical school of the University of Pennsylvania fail to comply with the standard of requirements here maintained, and to attain to the justly coveted diploma.

Heaven forbid that, proud of the position won by this University after a century and a half of effort, I should seem to speak in levity or in scorn of sister institutions of more recent birth, or of less

dignity. I believe firmly that the conditions of this country do demand a larger proportion of collegiate, and probably of medical, institutions than seems to be required elsewhere; and I know well and respect warmly the admirable work that is done in very many of the smaller colleges in various parts of the country. But what the community is coming to deprecate is the deliberate establishment of new medical schools in unsuitable localities, either by educational institutions which merely wish to continue their hold over their students, or by little groups of medical men who merely wish to promote their personal interests. There are branches of study, like Greek or mathematics, which may be studied as well, granted a true teacher and the necessary books, in a small village as in a metropolis. But no excellence on the part of the teacher can atone to the student of mechanical engineering for the want of the fully-equipped plant; and still less to the student of medicine for the want of the extensive and varied experience with all forms of disease and injury only to be acquired in the hospitals and dispensaries of a great city. Nor is it without importance, for both the public and the profession, that side by side with this obvious evil of excessively numerous medical schools comes the inseparable but more insidious danger of pauperizing the community by a superabundance of free medical service. Each medical school inevitably desires the most liberal use of hospital and dispensary facilities as attractions to draw students, and as a basis for practical instruction; and when, as is so common among us, these schools are in excess of the needs of the community, or are in towns too small for the purpose, the eager desire for ample clinical material is gratified at the expense of the local profession, and of the self-respect of a considerable portion of the community.

Fortunately the increasing endowments and constantly improving equipment of our great medical schools are drawing with more and more certainty the larger and better portion of the student class, and this will go on with growing rapidity until the day of small and ill-equipped schools shall be numbered as of the past. But even when we speak of such a medical school as this, connected with one of the oldest and greatest universities in America, whose advantages and whose services to medical science seem to entitle her to the success with which she is favored, even then it seems to me that the members of its medical faculty owe a paramount duty to the profession as well as to their students. This duty should take the form of regarding their privileged position as a trust; not as designed for their private emolument, but to enable them to promote more liberally and effectually every movement for the advancement of education and of science. Surely there is found in this spirit of devotion and in this recognition of a

higher law, one of the principal sources of the evident truth that in America, as in other countries, the greatest medical schools will be found in connection with the great universities. Nowhere, as I firmly believe, can bodies of men be found more profoundly penetrated by the spirit of loyalty to a great cause, of scorn for venality and of subordination of selfish interest to the advancement and diffusion of science than in our university faculties. Happy are those who find their bosom fired with fine ambition to play their part in this great university movement, whether called on to fill more conspicuous positions as teachers, or to do scarce less important work among the body of alumni upon whose widespread and sustaining influence the success of every forward movement must ultimately depend.

It always seems, when year after year we gather to hear the record of work done, or to consider the plans for future effort, as though the very air around us were thick with the shades of our illustrious colleagues, who, after fighting bravely the good fight, rest from their labors. But their good deeds do indeed follow them, and upon us, their successors, however unworthy we may be, fall their benediction and a double portion of their spirit of loyalty and devotion to truth and to Alma Mater.

I said that both the advances of 1877 and of 1891 had been made possible only by the willingness of the medical faculty to incur considerable loss if necessary. It is evident that the greedy competition for students, the attractions to the average man of cheap and easy courses, the inevitable increase in the expense of maintaining the more advanced system of education, all justified grave anxiety as to the result. In 1877 it was deemed unwise to make the change without substantial guarantees against deficit, covering five years. A list of the subsequent entering classes will show you that this fear proved unfounded, and that the movement was, almost from the first, a complete success. As a matter of fact not one dollar of the guarantee fund was ever required; so that, as it seemed difficult to imagine that anyone would sign a guarantee to the University without really expecting and intending to liquidate for the full amount, a request was made to the guarantors, and they, without exception, agreed to devote their respective sums to the erection of the fine laboratory building which was essential for the work of the dental no less than the medical department.

It is with the same cordial pleasure that I feel myself able to say that the great advance recently made in dental education, in accordance with the action of the Association of Dental Faculties in 1889, has resulted in most gratifying success. It is indeed difficult to point to any branch of education in which more rapid and substantial

progress has been recently made than in this. Only a few years since, the grade of dental education was so low that practitioners of dentistry were viewed with distrust as utterly unworthy to be considered, what they undoubtedly are, as practicing an important branch of medicine. The organization of the National Association of Dental Faculties in 1889 was the turning point in the history of dental education in America; and the loyal obedience paid by the faculties to the high-principled policy of this association has been honorable in the extreme and has borne the happiest fruits. The decision that, beginning with the session of 1891–92, attendance upon three full regular courses of not less than five months each, in separate years, shall be required before examination for graduation, naturally affected at first the attendance of students, especially at those schools where, as here, it was known that the new and higher standard would be rigorously enforced. But, just as has been shown in the history of our veterinary department; just as has happened with the recent important advance in the standard of our law department; so, too, in the case of the dental department has the law proved invariable that the best teaching and the best equipment will inevitably attract the largest number of the best students.

The honorable and courageous course of the leaders of the dental profession has amply justified the confidence shown by Harvard, the University of Michigan and the University of Pennsylvania, who were pioneers in the academic recognition of dental education. We may to-day congratulate ourselves that the future of this important branch of medical education is upon a basis of assured and dignified success.

The fundamental reasons for the lengthening of the curriculum in each of these professional schools are essentially the same. The increased time is demanded for the careful grading of the courses and for the introduction of the ample practical instruction of each individual student. It is the general recognition of the importance of these features, and it is the honest thoroughness with which they have been carried out in the professional schools of this University, which has rendered so successful all our previous advances, and which has justified the last great movement which we are assembled to-day to inaugurate. It was not long after the successful establishment of the three-years' course that it began to grow evident that an additional year, and a longer session in each year, were immediately required. Just so soon as the immense advantage of the new methods of clinical and laboratory teaching were manifest, so much time was demanded for them, and so many practical subjects of great importance claimed recognition, that the three-year course was as much overcrowded as had formerly been the two short sessions with their meagre curriculum. The

ideal of our future course was readily formed; the lines of progress were clearly indicated. The students are to present themselves with better qualifications, especially in the line of biological studies. The first two years are to be occupied with the fundamental studies of anatomy, chemistry and physiology, taught with admirable thoroughness, and with the largest reliance on practical laboratory work. In the last two years the great practical subjects of medicine, surgery and obstetrics, with the leading special branches, such as gynecology and ophthalmology, are to be taught both by didactic lecture and by clinical demonstration. Throughout the entire curriculum clinical opportunities are to be afforded, beginning with the restricted attendance on general clinics in the first year, and advancing to more and more extensive and personal work, both in general and special subjects, until the fourth year is reached, the practical advantages of which are such that it may be considered as almost the equivalent of a year of hospital residence. Each student shall be trained individually in the great art of physical diagnosis through three full years, and in the actual use of all the methods of precise study of disease. His faculties shall be educated, and his senses and power of observation trained to acuteness and accuracy. Such a course will speedily develop the special gifts of each individual, and provision is to be made that at the beginning of the fourth year each student shall elect a certain number of special branches for which he has acquired unusual taste or aptitude, and in these he is to be supplied with the largest opportunities for advanced practical work.

It requires no labored demonstration to show that this extended and graded course will exert a fine educational effect upon every faithful student; and will equip him for his professional work with a completeness never before obtainable on this continent. Such medical men will be indeed worthy of and will receive the fullest confidence of the community. They will be fitted to take a leading part in the vast struggle upon which we have entered—no longer only against individual cases of disease, but against the numerous and widely diffused causes which induce disease. The medicine of the future is the medicine of prevention; and it is to the alliance of medicine with hygiene, and to the aid they will derive from the subtlest methods of investigation that the human race is to look for the attainment of such splendor of health and physical development as was not even dreamed of by the Greek in the palmiest day of his supremacy. Close by this hall of medical science has been reared by the wisdom and the munificence of one[5] long and honorably connected with the profession, though himself no physician, the most completely

[1] Henry C. Lea, Esq.

equipped laboratory of hygiene in America; and in accordance with the conditions of the foundation every student of medicine in the University is to be carefully instructed in this most important of all medical subjects. Investigations are being conducted there, such as have led to the marvellous and epoch-making discoveries of Pasteur, of Koch, and of Lister. There will be trained men who will be called to the councils of our States, and even of the nation, to aid in the exclusion and in the extermination of preventable disease. It is in such retreats that true medical science, far removed from the strife of sects or the wayward passions of the day, sits calm-eyed and serene, pondering the great problems of life, of disease, of death. The world has come to recognize the grandeur of her achievements. The nations look on in admiring dread, while with unerring finger she points out at the very portals the microscopic cause of horrible infections, and orders the protective measures which baffle the invader. When a single discovery can so surely affect the health of nations, and influence their commercial prosperity, it should have ceased to be necessary to plead for the endowment of original research and for the most liberal advances in medical education.

Every inducement will be offered here to students who have shown special ability to remain for post-graduate work in such fields of original investigation. Thanks to the princely generosity of another friend of higher medical education, the descendant of one who long ago filled [1] with the highest distinction the chair of anatomy in this medical school, there has been erected the splendid building which will contain the Wistar Museum and Institute of Anatomy, in which facilities for advanced study, unknown elsewhere, will be available.

It is surely unnecessary to say more to explain the joy the trustees and the faculties and the alumni of the University feel to-day at the thought that this ideal, which a few years ago seemed so remote, is fully realized. But it is only fair to show briefly that the courage to take this further, and for many years in all probability this final step, has been derived not only from an abstract study of what medical education should be, but from a close observation of what has been accomplished by those graduates, who, entering the University in 1877 and subsequently, have profited by the substantial improvements then effected. I remember that some five and twenty years ago Sir James Paget gave [2] a short account of the careers of 1000 medical students who had attended his lectures during a period of twenty years. This period closed ten years before the date of the inquiry, so that all

[1] Dr. Caspar Wistar, Professor of Anatomy, 1789 to 1818; the Wistar Institute has been founded by his lineal descendant, General Isaac J. Wistar.

[2] St. Bartholomew Hosp. Rep., Vol. v, 1869, p. 238.

the graduates had enjoyed the benefit of at least ten years of medical work. "It is said," begins Paget, "that Abernethy, on entering the anatomical theatre for one of his introductory lectures, looked around at the crowd of pupils and exclaimed, as if with painful doubt, 'God help you all! what will become of you.'" I shall not give you the details of Paget's results. They seem to indicate a very encouraging degree of success, so that I was led to inquire how it has fared with those of our graduates who have left us since 1879. I may say that while the replies from almost 800 out of the number addressed show that each class has reached what must be regarded as a highly gratifying average of professional income, I prefer to wait before publishing the results until the returns are still more complete. No less gratifying is it to learn that no fewer than 600 out of a total of 1834 graduates had secured appointments as resident physicians, the large majority of the positions being won in competitive examinations. Forty-four have already been elected to professorships in medical schools, twenty-nine are lecturers and forty-eight are assistants. Now, when we reflect upon the large proportion who settle in small towns or rural districts, and also consider how recent is the period I have chosen for inquiry, you will agree with me as to the astonishingly large figures I have quoted. They show quite clearly that our graduates have been so much better equipped than the graduates of most other schools, and that there is such a general recognition of this fact, that the lion's share of important vacancies falls to our men. You know that we are very proud here of our historic connection with the University of Edinburgh, and certainly we have always striven to maintain the same scientific thoroughness, and likewise the same eminently practical character of teaching which have so long enabled that great school to hold its position of commanding influence and prosperity. Well, the gratifying experience of our recent graduates reminds me of a story that is told by my friend John Chiene, the eminent professor of surgery in the University of Edinburgh.

Professor Chiene says: "I was on a visit to London, where I met a famous southern teacher of medicine. He asked, 'What are *you* doing here?' I answered him, according to Scottish use and wont, 'Why do you ask?' He said, 'I fear you Scots; you are always up to some mischief. There is a vacancy in ——— [mentioning a well-known school of medicine]. There are six candidates for the place; four are Scotchmen, the fifth is an Englishman educated in Scotland, the sixth bears the name of MacGregor.'" We may confidently expect that the still more complete and practical education received under the system now inaugurated will enable our graduates to maintain the happy reputation they have established.

If the present great advance were in any sense experimental, if its success could for a single moment be doubted, it would be a source of deep concern. Many causes combine to dispel any such apprehension. In the first place the trustees have again prudently exacted the condition that before the new curriculum should go into actual operation a considerable guarantee fund ($20,000 annually for five years) should be secured; and in addition to this a large amount was subscribed to the endowment fund of the medical school. The members of the medical faculty showed on this occasion, as in 1877, an enthusiastic liberality which went far to meet the conditions imposed. Moreover, in full appreciation of the importance of relieving the teaching body of all taint of suspicion as to partiality owing to direct personal interest in the profits of the school, they have favored the adoption by the trustees of an agreement by which all surplus receipts, after the payment of stipulated salaries, shall be divided into three parts; of which one shall go to the general funds of the University; one to the endowment of the medical school, and only the remaining third shall be distributed equally among all members of the faculty. Such conduct was the more honorable on their part as they had already entered on a more costly and exacting system of instruction, which must surely increase greatly the expenses of the department, and, for a time at least, reduce the number of students in attendance.

No less honorable has been the part taken by the medical faculty of the University in aiding the enactment of the law which created in this year a State Board of Medical Examiners for Pennsylvania. Opinions may differ honestly as to the details of this law, and there may be points in which it will require amendment; but it is part of the traditions of the University that in 1806 a petition from its medical faculty was laid before the legislature requesting that a law be passed which should prevent the practice of medicine by ignorant persons who had not graduated from some university or college. From that day to this the influence of the University of Pennsylvania has been exerted in favor of higher requirements for graduation and of every restriction which can be thrown around the practice of medicine with the honest purpose of safeguarding the health and life of the community from ignorant or designing persons. It is an unquestionable triumph of the right, and therefore it must redound to the interest of every institution whose sole aim is to do right in this weighty matter of medical education, to find that within a very few years there have been established in the thirty-four States or territories about which I have been able to secure information on this point, State examinations of all applying for license to practice in thirteen, State examinations or official registration of diploma in twelve, and registration of diploma alone in nine.

I have told you at great length the story of the recent changes in medical education; of the way in which we have tried to secure the reforms recognized as necessary, and of the admirable results already secured in the increased renown and prosperity brought to the University, and in the gratifying success and position of our graduates. When we reflect that not at the University of Pennsylvania alone, to which I have limited my remarks, but in many other institutions the same righteous effort for sound learning and higher education is being made and is meeting with a like encouraging appreciation, it is a proud thought that in this Columbian year we may invite attention, not only to our vast material prosperity, but to the splendid development of our educational resources; to the rapid elevation of our standards, and to the pure intellectual life so strongly fostered at many great centres as it is in this venerable University.

We have stood on that bridge which spans the lagoon in Jackson Park and have realized as we gazed to the right, to the left, or ahead through the stately peristyle to the great lake beyond, that we were surrounded by such triumphs of art as not even Athens, in the golden age of Pericles and Phidias, could display. That one scene will pass, its purpose having been effected; but the impression it has produced will never pass away. It has introduced a new standard; it has furnished a new inspiration; it has shown the astonished world that the fifth act of the world's great drama of empire, as sung by Berkeley, opens on no sordid scene, but on one where noble ideals and noble opportunities await Time's noblest offspring. And to us who labor here in the departments of this great University, consecrated by the memories of the good and the wise who have lived here, consecrated also by the thousands of pure, high-minded youth who throng her halls, to us this year more clearly than before a vision arises of what she shall come to be, a vision as of temples not built with hands, where Truth shall dwell forever, and from whose glittering portals shall go out to all parts of the world Knowledge for the healing of the nations.

HEMORRHAGIC GLAUCOMA: ITS NATURE, PROGNOSIS AND TREATMENT.[1]

By S. D. Risley, A.M., M.D.

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Case I.—Hemorrhagic retinitis; secondary glaucoma; iridectomy; paracentesis and second iridectomy; enucleation.

April 22, 1884, Mr. E. W. G., aged 53, a tall, spare man, with iron-gray hair and swarthy opaque skin, a merchant from the interior of Pennsylvania, consulted me regarding the rapid and serious failure of vision in his right eye. His general health was much impaired, which he ascribed to financial troubles, followed by tedious litigation, which had disturbed him very much, and left him, according to his own statement, a nervous wreck. This had occurred eight years before, since which he had suffered more or less from impaired digestion and extreme nervousness, with spells of great mental depression. His hands and head were in a state of constant agitation as in progressive palsy. The reflexes were normal, and he was free from pain. The urine was acid, exhibited no trace of albumin or sugar, but at intervals deposited copious quantities of red sand. The radials rolled rigidly under the finger, but there was no gross lesion of the heart, although he was readily winded on the slightest exertion. He had not suffered from what he recognized as gout or rheumatism.

O. D. V. = counting fingers at .50 m. T: n. No contraction of field.

O. S. + 3. D. V. = 6-vi. Tension and field were normal.

The ophthalmoscope revealed in O. D., a plainly vascular iris and small pupil; H. = 3. D., small, dark-red optic nerve, with indistinct margins, and scattered throughout the eye-ground were innumerable small hemorrhages, some of which were flame-shaped, with fimbriated extremities, while many others were simply minute red points. The arteries were small, and exhibited gray and ragged margins as far as they could be traced into the periphery of the eye-ground. The light streak was for the most part absent. The veins were relatively large and full, their margins gray, and exhibited the central light streak far more than the arteries. No aneurismal dilatations were noted.

O. S. H. = 3. D. The general condition of the eye-ground was much the same as in the right eye, but there were no hemorrhages, and the disparity in the size of the arteries and veins was less marked.

[1] Read before the Section on Ophthalmology, Pan-American Congress, September, 1893.

The pupils in both eyes were small and dilated only small medium under homatropine. The serious nature of his trouble was explained to him, and an unfavorable prognosis given. His daily life was carefully regulated, the diet restricted, exercise in the open air enjoined, and he received potassium iodide in increasing doses. A saline water was to be taken in sufficient quantities to keep the bowels in a lax condition. In two days he returned much encouraged by the improvement in his general condition, and his vision had risen to $\frac{1}{xxiv}$. There were no new hemorrhages, and the eye-ground was less deeply red. The treatment was continued, and he received in addition a weak solution of eserine sulphate to be instilled in each eye night and morning. In one month he had gained fifteen pounds in weight, but his vision had made no further improvement. The tension in the right eye was questionably increased, but the hemorrhages had largely absorbed. The field of vision remained normal. He was then taking twenty grains of the potassium iodide three times daily, and this, together with the eserine, was continued. One month later, on May 25, the *right eye* became painful, which he attributed to a severe cold he had taken. The eye was not red, but subsequently became so, and the pain became so severe that he at once set out for the city. The eye was found a cinnabar red, the cornea steamy and insensitive, and the ball stony hard. The pupil was small and fixed, and the iris was plainly vascular. The anterior chamber was shallow, vision the merest quantitative perception of light. There was no change in the left eye, V. = 6-vi.

A stronger solution of eserine was freely instilled, and blood extracted from the temple. After the extraction of blood, notwithstanding the free use of eserine, the pupilary diameter promptly increased to 4 mm. No view of the fundus was obtainable. The following day he reported great relief from the treatment, which lasted until after midnight, when the pain returned with great violence. Blood was once more taken from the temple and iridectomy advised. This was promptly done, the operation, notwithstanding the shallow chamber, was fortunately smooth, but the hemorrhage following the excision of the iris was profuse and persistent, so that in the end the eye was closed with the anterior chamber filled with blood.

The wound healed promptly and the blood-clot slowly absorbed. The tension became normal once more and the pain was entirely relieved. In two weeks Mr. G. returned to his home with the eye white and free from pain, but totally blind, notwithstanding which he was very thankful for the relief experienced and the once more rapid improvement in health.

On the tenth day after his return home he suffered a severe attack of cholera morbus, accompanied with violent emesis and purging, which greatly weakened him. In twenty-four hours after the attack the iridectomized eye became uncomfortable, the discomfort rapidly developing into severe, unendurable pain, which on the fourth day once more drove him to the city for relief. The eye once more presented the cinnabar injection characteristic of the glaucomatous eye, was stony-hard, and the anterior chamber occupied with a large blood-clot. He was suffering greatly, and was completely broken in health. Enucleation was pointed out as the only sure source of relief, but to this he strenuously objected. Eserine and local depletion gave no relief, and so paracentesis of the cornea was done, affording instant freedom, except from a dull periorbital pain, the relief continuing for several days and T. = + 1. D. In a week the symptoms were all upon him again with new clot in the anterior chamber. He still refused enucleation, and with full understanding of the uncertainty of relief submitted to a second irridectomy, which was made downward with a Græfe knife, resulting in a broad coloboma well placed. To my own surprise this also healed kindly, afforded complete relief for six days, when he received a telegram announcing the death of a favorite grandchild which greatly depressed him. The following day he had an attack of acute indigestion, which, in turn, was followed once more by increased redness of the eye, and pain. The tension, which had been sub-normal after the second iridectomy, became too high, but the ball was not stony-hard as before. The symptoms steadily increased in violence for several days, but were relieved by the digestive derangement ending in a profuse diarrhea with many liquid stools. The relief was only transient, however, and after suffering several recurrences of pain, accompanied each time with fresh hemorrhage into the anterior chamber, he gave up the fight, and submitted to enucleation on August 9, rather less than four months after the first noticed impairment of vision.

Mr. G. has been seen from time to time since 1884, but at no time were hemorrhages detected in the left eye, although he had frequent alarms by spells of imperfect vision. A letter dated July 17, 1893, says: "My left eye has been good until last March, then the sight became very dim; could not read, but is much better; can read with ease and comfort."

Case II.—Hemorrhagic retinitis; secondary glaucoma; iridectomy; enucleation; followed in six years by similar attack in the other eye; iridectomy; total blindness.

On May 15, 1884, Mr. O., aged 65, came to me bearing a note from his physician, Dr. A. G. B. Hinkle, stating that two months before he had had an attack retinal apoplexy. Traces of albumin had

been found in his urine on several occasions, but lately this had disappeared and the secretion was about normal. He has had several attacks of vertigo, but none within two weeks. His treatment had been antiphlogistic, care as to his diet, rest and iodide of potassion.

Mr. O. was a man actively engaged and much engrossed by the details of a large business, and lately had been much troubled over its uncertainties, and by the sudden and unaccountable disappearance of a son. He was about five feet six inches in height, entirely bald, weighed about 250 pounds, had a florid face, and, although an abstainer from alcoholic beverages, was extremely intemperate at the table, eating large quantities of richly prepared foods, not hesitating to wash his roast beef into his stomach with quantities of milk. His temper was extremely aggressive and his manner always that of command. His career had been one of many vicissitudes, having been driven as a Union man from one of the border States during the war, at the sacrifice of a large fortune, which at the age of 65 he was struggling with might and main to recover. In March, 1884, after spending an entire morning in his counting room reading and answering letters, he noticed on getting into the street that his vision was defective, and the following evening the sight in the right eye had sunk to the ability to tell light from darkness. He consulted an oculist, who advised him of his apoplexy of the retina and gave him an unfavorable prognosis, both as to vision and health. Under the wisely prescribed regimen, noted above, and the potassium iodide he had lost fourteen pounds in weight.

O. D., no perception of light, ball stony-hard, cornea steamy and insensitive, deep ciliary injection, shallow anterior chamber, pupil 4 mm. There was profuse lachrymation, violent pain in the eye, severe hemicrania and the eye was kept closed as though from photophobia. No view of the fundus admissable.

O. S., white, free from pain, anterior chamber shallow, pupil small, T. + ?, Hm. 2.50, D. V. = 6-ix. Optic nerve gray, and at its upper part a few small reddish points, probably absorbing hemorrhages. The pupil was too small to permit of a satisfactory study of the macula lutea. There was concentric narrowing of the field to 30°. There was periodically a profuse deposition of uric acid, and he was subject to fits of despondency and irritability. The radials were rigid, but no serious lesion of the circulation was discovered, other than that existing in the retina. The serious nature of his trouble and the threatened onset of disease in the left eye were pointed out. Locally, eserine and leeches to the temples were directed. Free purgation and a rigid diet list, with exercise in the open air and entire absence from business and even moderate use of the left eye were insisted upon.

Two days later the pain was less and the steaminess of the cornea had diminished. Iridectomy was then made upward, a broad colomba well back being secured, notwithstanding the great difficulties presented by the shallow anterior chamber. The aqueous was allowed to escape slowly, but profuse hemorrhage followed the excision of the iris, and the eye was bandaged with the anterior chamber filled with blood. The pain was at once relieved, but two days later the lids were puffy, the blood clot still present and the wound open. The eye recovered slowly, with a filtration cicatrix. There was no return of pain, but there were frequently recurring hemorrhages into the anterior chamber until August 8, two months after the iridectomy, when, after consultation with a colleague, he consented to enucleation. He was urged to continue his general regimen as directed, under the care of his physician, and disappeared from observation. In the left eye vision remained as at first, possibly with some improvement, but no change in the field and no new hemorrhage.

In June, 1890, six years later, Mr. O. returned, greatly alarmed over the diminished sight in his remaining eye. He had had repeated attacks of transient impairment of sight from which he would slowly recover, but the present attack was worse and persisted. He has no pain. With + 2.50, v. 6-xviii, T. + ?, pupil small, anterior chamber shallow, iris apparently healthy, cornea and deeper media clear, field narrowed concentrically to 20° and a notch out of the lower temporal field extending quite up to the fixation point. Pupil was too small to permit of satisfactory examination of the eye-ground, so a drop of 4 per cent. solution of cocaine was instilled. Dilatation secured was but little. The fundus was found studded with numerous minute hemorrhages, the arteries small, veins only relatively large, a doubtful cupping of the nerve, which is gray and obviously the subject of a slowly progressing atrophy. He was apprised of the fact that he had much cause for alarm, in the presence of the optic nerve atrophy, the retinal hemorrhage and his general dyscrasia. The arterial sclerosis had evidently advanced during the intervening years, and he was subject to fits of indigestion if he did not exercise care in his eating. The portentous character of these retinal leaks were explained as showing the condition of the general blood-vessel system, and warning him of the importance of moderate indulgence at the table and of a carefully regulated life. Blindness was sooner or later inevitable, which he himself felt must be true after his experience with the other eye. Consultation was requested, but this he refused. Potassium iodide was again administered and the instillation of eserine resumed. In a week vision rose to 6-ix, and he said he could move about with less difficulty. The middle of July he went to the New England coast

for the summer and was not seen again until September 20. Vision had fallen to 6-xix ; field as before, and there were numerous flame-shaped hemorrhages with many red spots dotted over the fundus ; he saw to get about with difficulty. His daughter related that he would pay no heed to his diet, was self-willed and, in spite of remonstrance, would drink glass after glass of milk with an otherwise full and rich meal. Even at the seaside he had worked incessantly at his business by telegram, correspondence and otherwise. Consultation was again requested, but declined. Under purging, eserine, rest and ascending doses of the iodide of potassium and corrosive sublimate his vision once more improved. October 11, v. 6-ix, and the hemorrhages were disappearing. His wife was then taken critically ill, which quite unnerved him, and his eye grew rapidly worse.

A pronounced glaucoma now supervened, ball stony-hard. His wife died at this very critical juncture, and after her burial the vision was found reduced to central only, and only the large letters on the test card could be made out by searching at two or three feet. The pain, not severe at first in his grief stunned condition, steadily grew worse. That blindness was inevitable was only too plain, but at his request, and after carefully explaining that it was a forlorn hope, an iridectomy was successfully made upward, securing a typical and well-placed coloboma. There was much bleeding, but the wound healed kindly and the tension was restored to normal or possibly sub-normal. There was no return of pain, but the eye remained red a long time and vision was slowly lost, probably from atrophy of the nerve, or possibly from repeated hemorrhages in the bottom of the eye.

He was last seen in April, 1891, then totally blind, free from pain, the eye nearly white and the tension slightly subnormal. He came to reproach me with having been the occasion of his blindness, after a consultation had with another surgeon in a distant city, whither he had gone on a business trip. It is scarcely possible that any experienced surgeon would ever say that an eye with hemorrhagic glaucoma had been lost through a colleague's neglect, hence his views must have been misunderstood.

Case III.—Hemorrhagic retinitis ; secondary glaucoma; blindness.

Mrs. X., aged 70, was brought by her son, a physician, for rapidly failing vision in both eyes. Vision had sunk to 6-xxx, in O. D., and to counting fingers at 2′ in the left. She had no pain, but said her eyes were weak, and had been failing her for a long time. The anterior perforating vessels were large and dark colored ; the caruncles were swollen. There is no note regarding the state of the pupils or anterior chamber. O. D. media were transparent, and there were

innumerable small hemorrhages dotted over the fundus. The margins were veiled, no cupping, marked perivasculitis. O. S., spicules of opacity in periphery of lens, details of fundus blurred by state of vitreous, but here also marked perivasculitis. No cupping of nerve, hemorrhages in retina more numerous and larger, and involving macular region more seriously than in the right eye. There is no record of the field of vision Tn. or -|- ? In both eyes the sclera are rigid.

The patient is a tall, spare woman, with dark, opaque skin, iron-gray hair. Her manner is one of anxiety and distrust. There are gouty concretions in her finger-joints, and the hands are distorted. Says she has suffered much from rheumatism. Urine has high specific gravity and trace of albumin.

Had been told her eye trouble was glaucoma, and her son brought her for an iridectomy. He was disappointed when a grave prognosis was given both as to general health and the probable results of any local treatment.

Operation was advised against, and her regimen directed. Potassium iodine was prescribed internally, and eserine locally, while complete rest of the eyes, and life in the open air were enjoined. The son was not satisfied with this conservative advice, and sought the opinion of an eminent colleague in Philadelphia, who also advised against operative procedure.

Still other opinions were sought until the desired advice was received, and an iredectomy performed on the left eye after a very encouraging opinion had been given regarding the brilliancy of the results of iridectomy in glaucoma.

The wound refused to heal; there was a succession of hemorrhages into the anterior chamber, each time attended with pain. In this condition my advice was sought again, and the above history obtained, but I declined to direct them further, as they were disposed to criticise the doctor adversely, who had probably mistook the nature of the case, not being able to study the eye-ground as I could do a month earlier in its history and during the hemorrhagic stage.

The evident relation of the disease in cases *one* and *two*, to mental worry, is interesting. The well-known depressing influences of grief seem in these cases to have exerted a baleful influence in promoting the ocular symptoms, probably through the morbific products of impaired assimilation. Jaundice is not infrequently occasioned by grief.

I am inclined to offer my excuse for calling attention to the gloomy clinical picture presented by hemorrhagic glaucoma. I confess it would have been a more pleasing task to have invited the section to the consideration of some form of disease which experience has taught us to assail with some hope of a successful issue. The serious prog-

nosis which must be given in this disease, however, makes it all the more important that ophthalmic surgeons should entertain more or less uniform views as to its essential gravity and its relation to other forms of eye disease in which increased intra-ocular tension is a characteristic symptom. Inspired by the brilliant results of surgical procedure in primary glaucoma, the surgeon, who has been fortunate enough to escape experience with this fortunately somewhat rare disease, may be led into a too hopeful prognosis. It is important, therefore, that a line should be drawn, as definitely as may be, between hemorrhagic and primary glaucoma, since on the one side lies a hopeful prognosis, while on the other both experience and pathology join hands to teach us the limits of our art.

My interesting, although forbidding, experience with this disease, the serious nature of which I did not at first fully appreciate, has prompted to its more careful study and to a comparison of my own experience with the published records. While this collective study has served to remove the tendency to self-reproach for the unfortunate outcome in the cases here reported, it is to be regretted that it has also failed to inspire with greater courage, or added hopefulness, should further responsibilities arise. I am greatly indebted to Dr. A. G. Thompson for aid in collecting the published work to date, but the recent appearance of the paper by Bourgon,[1] and the translation of the work of Valude and Dubief, by Hubbell,[2] render the exhaustive study which was contemplated unnecessary.

A Comparatively Rare Affection.—There is cause for congratulation, however, in the comparative infrequency of the disease. In 20,000 eye patients I have seen but four cases, and several of my colleagues, with large experience, report by letter that they have never met with a case. In 464 glaucomatous eyes reported by Knapp, and quoted by Noyes, but nine of them were classified as hemorrhagic, and Bourgon, in his elaborate paper, places its occurrence at one case in 6741 patients.

Prognosis.—It presents, however, a most gloomy picture, since no matter what form of treatment is adopted after the glaucomatous stage of the disease is reached, it goes on to a fatal issue, so far as vision is concerned. Thus, in twenty-four cases, comprising twenty-eight eyes, all resulted in total loss of vision, and twenty-four of the eyes were subsequently excised. The cases referred to are, one by Norris,[3] one by Kellock,[4] three by Randolph,[5] two by Nettleship[6] and one by

[1] Annals d'Oculistique, November, 1893.
[2] Oph. Record, Vol. II, April, 1893.
[3] Trans. Am. Oph. Soc., Vol. IV.
[4] Trans. Am. Oph. Soc., Vol. V.
[5] Trans. Af. Oph. Sect. Am. Med. Ass., 1891, p. 257.
[6] Trans. Oph. Soc., Vol. IV.

Valude and Dubief,[1] in all of which effort had been made to save the eyes. Then one each by Pagenstecher and Deutschmann, two by Brailey and Edmunds, three by Valude, and two by Bourgon, and one each by Wadsworth and de Schweinitz, in which enucleation was performed primarily. Bourgon, however, in detailing the results of iridectomy in twenty-four cases, records sixteen failures and eleven enucleations. In reply to a private letter, Wadsworth reports one case in which both eyes, with an interval of a few months, were the subject of this disease; one had sclerotomy, which gave only temporary relief, and was subsequently enucleated, the first eye having beem primarily excised. Ayres also reports by letter two cases, enucleated after iridectomy had proved futile, and de Schweinitz two cases, one iridectomized and subsequently enucleated, and one primarily excised. In the three cases here reported from my own private practice, four eyes were involved, all proving fatal to vision, notwithstanding general therapeutics and operative measures in all. Two of the balls were enucleated, and two passed from observation. It will be difficult to find a clinical picture with a darker background of prognosis than is here presented by hemorrhagic glaucoma.

The terse but unfavorable prognosis given in all our text-books are too well-known to require repetition here. Schweiger states the general sense of classified treatises on diseases of the eye in the following language:[2] "The results of iridectomy are generally unfavorable in those cases of secondary glaucoma, which have developed after retinal hemorrhages. In such cases vision is frequently greatly impaired by the hemorrhages, and is irrevocably lost by the glaucomatous disease. But if severe and continuous pain remains, which yields to no other treatment, nothing can be expected from iridectomy, and it only remains to enucleate the eye."

Pathology.—A grave prognosis, however, was to have been anticipated from a study of the general and local pathological conditions present in most of the patients who are the victims of this fell disease; so that, indeed, not only is vision surely lost, but the general prognosis is scarcely less grave than the local. While comparatively few deaths have found their reports in ophthalmological literature, it is, nevertheless, likely that in some cases the subsequently fatal ending would be known only to the general physician. The fact which is patent to us all, that of the numerous cases of retinal hemorrhage we are called upon to treat, a very small number ever develop glaucoma, is, in part at least, accounted for by the fact that fatal apoplexies occur before

[1] Vide Oph. Record, Vol. II, p. 384. Translated by A. A. Hubbell, from Annals d'Oculistique, August, 1892.

[2] Hand-book of Oph., p. 52.

the glaucoma has had time to develop, since it not infrequently happens that many months, and in some cases a year or even longer may elapse between the occurrence of the retinal hemorrhage and the onset of the glaucoma, in which time fatal intra-cranial apoplexies may, and do, occur. In other cases the results of treatment and an improved regimen may be effectual in restoring a more favorable state of health, and by this means ward off both the glaucoma and the fatal apoplexy. That glaucoma does not follow most cases of retinal hemorrhage, or comes on only after prolonged intervals, may be due, in part, to the fact that hemorrhages are more likely to occur at the beginning of the sclerosis of the vascular walls, as pointed out by Thoma and quoted by Bull[1] as follows: "In the beginning of the process there is a loss of elasticity of the vascular wall, shown in life by a soft, high pulse, and pulsation and tortuosity of the arteries, notably the arteries of the retina. At this stage there is the greatest danger of rupture of the arteries; later, the vessels, by reason of the deposit of connective tissue in the intima, become firm and rigid."

As the systemic conditions advance, upon which the arterial lesions depend, the general impairment of the nutritive processes increases in the eye as elsewhere. Under the irritating presence of the retinal hemorrhage, and the disturbed nutrition of the eye-ball, brought about by interference with its circulation and by the presence of exudates, we recognize those conditions which readily lead to impaired secretion and impeded excretion, probably through pathological changes in the region of the canal of Schlemm and the posterior filtration channels. In the case reported by Norris,[2] there were hemorrhages in the sclerotic and in and around the canal of Schlemm.

Valude and Dubief, after careful microscopic study of their four cases, conclude that "the increase of tension in hemorrhagic glaucoma depends, essentially, on mechanical obstruction, sustained by the whole of the ocular circulatory apparatus."[3] Edmunds and Brailey[4] point out that in pure glaucoma cases there is almost always a most important change in some or all of the intraocular blood-vessels. This consists in a great enlargement of their calibre, consequent upon their dilatation, and is accompanied, in the majority of cases, by a thinness of their walls, due to actual atrophy, and these cases are characteristic of glaucoma. In seventeen cases of hemorrhagic glaucoma examined by them, there was "thickening of the arterial walls" in all but one.

[1] N. Y. Med. Jr., Aug. 12, 1893.

[2] Tran. Am. Oph. Soc., Vol. IV, p. 476.

[3] Oph. Record, Vol. II. Translated by Dr. A. A. Hubbell, April, 1893, from An. d'Oculistique August, 1892.

[4] Royal Oph. Hos. Reports, Vol. IX, p. 476.

In Randolph's case[1] there was found hyaline degeneration of the muscular coat of the central artery and the veins of the choroid were enormously distended, while endarteritis was apparent in several of the smaller arteries.

Bernbacher and Czermak always found in glaucomatous eyes the products of inflammation along the intraocular veins and around the veins of Schlemm's canal.

Dobrowolsky observed, comparatively frequently, perivasculitis.

Brailey[2] says while arterial hypertrophy may be associated with general disease, as in Bright's, diabetes or syphilis, it may also be a purely local affection, as in cases of glaucoma following injury, where a similar condition of the blood-vessels was found. In Wadsworth's case the disease was purely local.

It is obvious, therefore, that the onset of glaucoma in apoplectic retinitis is determined by purely local conditions, which in certain cases is favored by a rigid sclera, or by retino-choroidal states brought about in hyperopic or astigmatic eyes, or by many other conceivable conditions, while in the absence of these favoring conditions the glaucoma may never occur; or may supervene only after the lapse of time, the irritating presence of the hemorrhage and exudates, and the advancing pathological state of the blood vessels, steadily producing the local conditions shown to be characteristic of glaucoma. In a word, therefore, we must regard the glaucomatous symptom as secondary to the hemorrhages and more or less strictly dependent upon the accompanying local pathological states. The graver character of the glaucoma of the hemorrhagic variety seems to grow out of its intimate association with systemic conditions, of which it forms but a local expression.

Regarding the existence of general arterial disease, many of the reports are silent. In my own cases they were all subjects of general arterial sclerosis, and in many of the reported cases the existence of general vascular disease is either distinctly noted, or the existence of albuminuria, sciatica, as in Randolph's case, or other symptoms of general disease were present, which render its existence highly probable. In the four cases of Valude and Dubief the arterial sclerosis was present in all.[3] In two of my own cases the gradual progress of the general vascular disease was observed as the years went by. Both of these patients were victims of lithemia and suffered repeated, acute exacerbations of the accompanying digestive derangements, each time followed by an increase of the ocular symptoms. The most recent

[1] Trans. Oph. Sec. Am. Med. Assoc., 1891.
[2] Loc. cit.
[3] Loc. cit.

and one of the most valuable contributions to the important role played by systemic disorders in causing ocular disease is the paper by Dr. Bull,[1] read in July last before the American Ophthalmological Society, on "Gouty Retinitis, Chorio-retinitis and Neuro-retinitis." Although there were retinal hemorrhages in but one of the five cases upon which his paper is based, nevertheless the eye-ground changes described by him are the same as those observed in hemorrhagic retinitis, barring the presence of the hemorrhages. This is especially true as regards the appearance of the blood-vessels, namely, the white line along the vessels, the result of perivasculitis, or sclerosis. The clinical facts connected with retinal hemorrhages, therefore, justify the ophthalmic surgeon in the gravity of the prognosis given to patients who come with these lesions. In the case reported by W. F. Norris, which I also saw throughout its course, death followed from apoplexy one year after the eye had been enucleated. Von Graefe, Rampoldi, Brailey and Edmunds, Hirshberg and others have observed cases of hemorrhagic glaucoma followed by symptoms of intracranial hemorrhage, with a fatal issue, and Dr. J. A. White kindly reports by letter two cases of hemorrhagic glaucoma, both of which died from apoplexy. This he puts forward as supporting his view "that the whole trouble is due to atheroma of the arteries."

In answer to a circular letter addressed to a few ophthalmological friends, I have received the following replies: Dr. J. L. Thompson writes: "I have met with many cases of this disease and in every instance have found that the glaucomatous symptoms were set up months, and in some instances as long as two years after the hemorrhages were first observed. I have watched these cases from time to time, some of them with marked impairment of vision, others with but slight, but without pain or increase of tension, for from six months to two years, but have eventually had to enucleate these eyes on account of the excessive pain. The long experience which has enabled me to watch these cases through all their phases has convinced me that hemorrhagic glaucoma is a secondary affection in at least the great majority of instances. Eserine sometimes helps them for a short time. Iridectomy or sclerotomy are certainly contra-indicated, but enucleation often has to be resorted to."

Dr. G. E. de Schweinitz writes: "It seems to me that hemorrhagic glaucoma is always a secondary glaucoma, and no doubt depends, in the first place, on the hemorrhagic retinitis which precedes it, and, in the second place, on a constitutional disturbance which determines the lesion in the retina. I have performed iridectomy on only one such case. Twenty-four hours after the iridectomy there was fresh

[1] Loc. cit.

intraocular hemorrhage and a prolapse of the vitreous into the wound. Curiously enough, after the abscission of this prolapse the wound healed nicely, and the patient was relieved from pain, although the eye was sightless. It seems to me that Bourgon's conclusion is a good one; namely, that during the hemorrhagic period the general condition should be cared for and the ocular globe rendered as free from congestion as possible. During the period of confirmed glaucoma myotics are useful, as well as moist heat. If surgical measures were called for I would do either tapping of the vitreous or sclerotomy, but I would not perform iridectomy. I would do neither of these operations without previously obtaining the consent of the patient to perform enucleation if I failed, or if not enucleation, one of its substitutes. In a second case, which occurred only a few weeks ago, remarkable relief followed general medication, such as I have indicated, and in addition, full doses of chloral, which, I believe, has some influence in lessening tension. In spite of this, however, there was a fresh attack at the end of a month, and the eye was enucleated at the patient's request, the eye being practically sightless. Microscopically, the lesions were those of an exquisite example of hemorrhagic retinitis."

Dr. F. C. Hotz refers to a published case[1] and writes: "The affection, I have no doubt, begins in the retina; the glaucoma symptoms are secondary, and no kind of operation will save the eye."

Dr. O. F. Wadsworth writes: "To obtain any definite idea of the etiology of hemorrhagic glaucoma it must be shown why in some eyes hemorrhage in the retina or vitreous is followed, at greater or less interval, by glaucomatous symptoms, in others not. In my opinion scarcely any approach has been made to the solution of this question. Probably the etiology is not always the same. Such a case as the following seems to preclude other than a local cause: A lady beyond middle life presented hemorrhages scattered all over the retina of one eye; in the course of the year glaucoma and enucleation; some months later sight of second eye lost with similar subjective symptoms; eventually glaucoma; sclerotomy, which helped for only a few days; enucleation. Careful examination failed to discover disease of any other organ. The lady lived some twelve years from the time of hemorrhage in the first eye and died of acute pneumonia. As to prognosis, it is generally fatal; not simply as to sight; that, as a rule, is practically gone before the glaucoma appears, but as to the existence of the organ. In rare cases pain and symptoms of inflammation subside and do not recur. Usually enucleation is necessary to free the patient from continued pain. Both iridectomy and sclerotomy have failed in my hands to relieve pain for more than a very brief time.

[1] Oph. Record, Vol. II, p. 234.

Still, if enucleation were especially repugnant to the patient I should try sclerotomy, but with the distinct understanding that it will probably have only a transitory effect."

Dr. Joseph A. White writes: "My opinion is that the whole trouble is due to atheroma of the arteries. Two of my cases of hemorrhagic glaucoma died of apoplexy, rather supporting this theory, because the eye and the brain are the places where the arteries are the most exposed and most liable to rupture."

Dr. S. C. Ayres says: "In relation to this disease I will say that I have been very fortunate in not meeting many such cases. The most striking case is that of a woman where the iridectomy was successfully done and I was called to her in a few hours, suffering intense pain. On removing the bandage I found the entire vitreous extruded and the globe filled with blood. I immediately enucleated the eye. In another case the globe partly filled with blood after iridectomy, and I think remained sensitive for a long time. In a severe case, where the vision was lost or nearly so, I should recommend enucleation. The after-results of operation are so unsatisfactory that enucleation is frequently necessary, even after well-executed iridectomy."

Dr. Swan M. Burnett speaks of it as a truly terrible disease, and regards himself fortunate in having seen but two cases.

Dr. Leartus Connor: "I have never seen a case of hemorrhagic glaucoma in my own work, but have been led to regard the disease as primarily due to a degeneration of the blood-vessels."

Dr. Edward Jackson reports two cases in which general therapeutic measures proved of value, but the ultimate results were not known. His feeling is against operation, but would operate if desired, after full explanation of the prospects, and decides in favor of posterior sclerotomy rather than iridectomy or anterior sclerotomy.

Treatment.—These views of hemorrhagic glaucoma, and the grave clinical picture which it presents, therefore, fully justifies a serious prognosis. Not only as to the almost inevitable loss of vision, and the sacrifice of the eye itself, but also as to a possible fatal issue.

My own judgment and experience are fully in accord with the recommendations of Bourgon,[1] regarding the treatment of the disease. Following his admirable clinical division we will discuss its treatment during the two characteristic periods it presents.

First: A hemorrhagic period.

Second: A period of confirmed glaucoma.

During the hemorrhagic period our care must first be devoted to the general condition of the patient; and, second, "to remove the con-

[1] Loc. cit.

gestion of the eye ball." No scheme could be better than this as a working therapeutic basis.

Our only hope for the preservation of any vision must be based upon our efforts during the hemorrhagic stage of the disease. Having in mind the fact that the majority of these cases are victims of general arterio-sclerosis, and the diathesis which has produced this state of the general vascular tree, the general therapeutic measures to be adopted, are such as are properly directed for the existing diathesis, whatever it may be, gout, rheumatism, syphilis, morbus Brightii, diabetes, chronic malarial disease, and the allied pathological states of the heart, liver, kidneys or spleen. To this end the patient's daily life must be controlled. The hours for rest, and the amount and kind of exercise, and a carefully-arranged dietary, are of great importance. Potassium iodide and bromide, or in some cases iodide of iron and corrosive sublimate, in small and long-continued doses, frequently repeated, should be administered. In hemorrhagic retinitis, with traces of albumin, and granular or hyaline casts in the urine, I usually employ the Basham's mixture, with the corrosive sublimate added, and avoid the iodine salts. If the turgid state of the chorioidal circulation is marked, and headache is a prominent symptom, I have for many years employed ergot, often with much relief. If there is cause to expect the existence of malarial poisoning, quinine should be given, either alone or with arsenic. In this connection the following case is of interest: A lady, aged 46, had recurring retinal hemorrhages, extending over a year and a half, with now and again increase of tension and pain. The blood contained the corpuscles of Laveran, and she lived in a malarial region. The increased tension and pain were relieved by eserine and local bleeding, and she received quinine and arsenic internally, and was sent to the seashore.

The retinal hemorrhage ceased to recur after six months, and she returned to her home in October. In November following she was attacked with apoplexy in church, and died in a few days; just one year before she had had a pronounced chill, the cold stage of intermittent while sitting in the same seat.[1]

In this case the glaucoma was several times a threatening symptom, and it is fair to assume that the therapeutic measures adopted for her relief were effective in warding it off.

The general therapeutic measures which have been suggested are, fortunately, also well calculated to relieve the intraocular conditions. As we all know the iodine salts and bromide of potassium, or lithium, and bichloride of mercury, are markedly beneficial in treating diseases of the chorioid and retina, of the non-hemorrhagic, as well as the hem-

[1] Therapeutic Gazette, February 15, 1892.

orrhagic form. The value of ergot in these purely local affections is also well recognized; but in addition to these general measures certain local means are unquestionably of great value. In the first place, absolute rest of both eyes is of great importance, and to this end, where refraction errors exist, they should be carefully corrected, so that even in moving about all strain upon the fellow, as well as the involved eye, is removed. Plane, smoked glasses should be worn to protect from glares of light. Plane glasses are preferable for the reason that the coquilles are usually irregular, concave cylinders, and thus cause much irritating strain. Systematic local depletion is important. A single leech either to the temple, or over the mastoid on alternate days, preferably before retiring at night. The local free use of a boric acid wash, to which a very little cocaine may be added, not more than half a grain to the ounce, used with an eye cup, rather than a pipette, is a grateful application, and removes the conjunctival irritation usually present. Even in the hemorrhagic stage of the disease I esteem weak solutions of the sulphate, or salicylate of eserine, not more than one-tenth of a grain to the ounce, instilled twice or thrice daily, of much value. I have long held the opinion that eserine was valuable because of its stimulating action over the muscular coat of the blood vessels, and I am gratified to note that this view is also suggested by Laqueur.[1] Its application to eyes weak from retino-chorioidal irritation often affords great comfort to the patient. Warm and moist applications favor congestion, and should be forbidden.

Period of Confirmed Glaucoma.—Unfortunately, the most painstaking and well-directed treatment of hemorrhagic retinitis does not in all cases prevent the onset of glaucoma, and we are driven to a choice in the majority of cases between a primary enucleation of the eye and certain operative procedures, performed not in the hope of restoring vision, for this is already hopelessly lost, but in the hope of saving the eyeball. We can readily believe that if general and local therapeutic means have failed to ward off the attack, they will be of little avail, after its onset is well established. In fact the excruciating pain is rarely relieved except by surgical procedure. Strong solutions of eserine, frequently repeated, local bleeding, and hot applications to the ball sometimes give partial but only transient relief.

Stilling[2] recommends the use of chloral, as having the property of reducing the tension of the ball; and de Schweinitz also recommends the drug for this purpose. The pain continuing we are then driven to surgical effort.

The results of operative measures for the preservation of either

[1] Oph. Hos. Royal Reports, page 101.
[2] Arch., Vol. XVI, page 445.

vision or the eyeball are extremely discouraging, and as has already been pointed out in the great majority of cases the ball must be sacrificed to give permanent relief from pain. The gratifying results of iridectomy in ordinary glaucoma are not realized in this disease. Nevertheless, in case one, it gave marked relief, which might have endured but for his unfortunate attack of cholera morbus. In the second eye of case two, although blindness was not averted, it nevertheless gave permanent relief from increased tension and pain, and the eyeball was retained. The same was true in one case each by Ayres and de Schweinitz. In a few other cases the ball was retained, presumably as the result of iridectomy. Notwithstanding this the consensus of opinion is opposed to iridectomy. On this point, however, there is a great diversity of opinion, and I cannot entirely agree with the view of Bourgon, that it should be "vigorously proscribed." Paracentesis of the cornea in case one gave complete relief from pain, which lasted several days, and, therefore, commends itself as a simple measure for temporary relief until other and more radical means may be adopted. Sclerotomy at the rim of the anterior chamber seems on the whole to commend itself as far superior to iridectomy, a fact to have been anticipated, having in mind the general vascular disease. After careful study, should future responsibilities arise, I should first of all do sclerotomy or paracentetis of the vitreous chamber, and having by this means relieved the tension of the globe, and possibly secured a deeper anterior chamber, perform either a free anterior sclerotomy, or if the iris were moderately healthy, a broad iridectomy.

THE EARLY RECOGNITION OF TUBERCULOSIS.[1]

By Lawrence F. Flick, M.D.,

Philadelphia.

While the old charge, that tuberculosis is an incurable disease, can no longer be successfully maintained it will be readily admitted by every one, who has had much experience, that cures are the exception and fatalities the rule. Men who have been in practice for years will find, when they come to write down the names of patients cured, that the list is a disappointingly short one.

Tuberculosis is curable in direct ratio to the size of the deposit and the resisting power of the patient. In most cases the primary deposit

[1] Read before the Woodbury County Medical Society, July 27, 1893.

is small and when it takes place the resisting power of the patient is fairly good, at least better than at any subsequent stage of the disease. Were the condition recognized at this time many cases might be cured, but in practice this is rarely done, usually the disease is not recognized until constitutional symptoms have set in, and then it is mostly incurable.

It should be born in mind that tuberculosis is a parasitic disease and consequently always and essentially a local disease. The irritating influence of the deposit and the absorption of the poisonous products of the bacilli will, of course, give rise to constitutional symptoms, and these symptoms are the most striking clinical features of the disease. It was their prominence which led to the theory, held in the profession for many years and held largely now, that tuberculosis is a constitutional disease.

Tubercle bacilli leave their host through broken-down tissue, usually, though wrongly, called pus, and, as far as we know, gain entrance into a new host through the same medium. The ordinary methods of entrance into a new host are by way of the digestive and respiratory tracts. At both of these gateways nature placed barriers, but not insurmountable ones. The stomach is the natural gateway for all palpable substances as the lungs are for gases. In the stomach disease germs are apt to be destroyed by the gastric fluid, and their entrance into the system through the lungs is obstructed by the conformation and construction of the respiratory tract. When the gastric juice of the stomach is rendered abnormal by a depressed nervous system or by any other cause, or when the disease germs taken in are very numerous, or when they are protected by indigestible food, food which cannot be penetrated by gastric juice, disease gains entrance through this part, when, in spite of the formation of the nose and throat and the obstruction of the hair in the nares, and the expulsive efforts of the lungs upon the slightest irritation of a palpable body, palpable bodies carrying disease germs do gain entrance into the bronchi and even into the bronchioles and succeed in remaining there until they are taken up and carried into the system by the lymphatic glands; then disease gains entrance through the lungs.

I am aware that in the views expressed here I am at variance with most writers, but my opinion is based upon clinical observations and I have as yet seen no evidence advanced, either clinical or experimental, to disprove my position. The stomach is probably the most frequent method of entrance of the tubercle bacilli into the system. The route is a very direct one, a person inhaling dried-up tubercular tissue is more apt to get it into his stomach than into his lungs because it is liable to be deposited in the pharynx and swallowed with the spittle or

food. The bacilli are also frequently taken with food and drink by persons who live in close social relations with consumptives. The eating and drinking utensils of consumptives and in fact almost everything they handle, unless they are very cleanly, is liable to become smeared with wet tubercular tissue, and to prove a source of infection to others. Food handled by consumptives and tuberculous milk and meat are also sources of infection by way of the stomach. When the bacilli have run the gauntlet of the stomach they are taken up by the lacteals of the small intestines and are carried directly into the circulation by way of the thoracic duct, the vena cava, the right heart, the lungs, the left heart and thence through the aorta. It will thus be seen that all of the infected blood has to pass through the lungs before it reaches any other part of the body and this accounts for the primary seat of the disease being most frequently in the lungs. As the blood leaves the left heart the largest amount goes to the intra-cranial and intra-abdominal organs, and we find in practice that these are next in frequency the primary seat of the disease. It is a pretty well-established fact that any interference with the circulation of a part is a powerful determining factor in tubercle deposit. The bacilli as they are carried along in the blood are arrested in the arterioles where the circulation is not entirely free. This accounts for a great many otherwise inexplicable clinical phenomena in tuberculosis. It explains why the apices of the lungs are most frequently affected first, why we have a primary deposit in the bones, the reproductive organs, the intestines, the peritoneum, the brain, in fact, why we can have it in any organ or tissue which has a blood supply. With many people who lead an inactive life the circulation in the apices of the lungs is always torpid, and those parts of the lungs are therefore an excellent nidus for the arrest and development of the tubercle bacilli. Persons who develop bone tuberculosis can nearly always give a history of injury to the bone affected. Where the reproductive organs are the seat of the disease we will invariably find a history of congestion, injury or abnormal action. In children in whom we are apt to have congestion of the intestinal tract from overfeeding and congestion of the membranes of the brain from teething we nearly always have the primary seat of tuberculosis in the one or other of these regions.

Whilst the stomach is the most frequent gate of entrance of the bacilli into the system it is certain that the respiratory tract is likewise a frequent gateway. Formerly I was under the impression that the bacilli rarely gained entrance through the lungs, but some recent clinical studies of my own and some experiments made in the Loomis' laboratory[1] have convinced me that in this I was wrong. When the

[1] See Researches of the Loomis' Laboratory of the Medical Department of the University of New York, Nos. 1 and 2.

bacilli are carried into the system by way of the lungs the route of entrance is, strange to say, rather a cicuitous one, the mode of entrance of the bacillus tuberculosis into the system,[1] and the development of the disease is necessarily very slow and insidious. As already stated, nature has placed many barriers in the way of palpable bodies entering into the lungs. The construction of the nose, pharynx and bronchi are all of such a nature that they interfere with the progress of any but gaseous matters. We know, however, that palpable bodies can get into the bronchi in spite of every obstacle. Tubercle bacilli cannot live long without an envelopment of some kind. Their usual envelopment is broken-down tissue and it is while embedded in particles of this that they are carried into the bronchial tubes. When they have been carried into the lungs, unless they are ejected with mucus secreted by the bronchial mucous membrane, they are, together with the material in which they are imbedded, absorbed by the lymphatic system and carried into the lymphatic glands where they will find a nidus for development. In these cases the primary seat of tuberculosis is always in the bronchial lymphatic glands, and it may remain dormant here for years before it even sets up any clinical symptoms that attract attention. It is only after a gland breaks down and deposits take place in lung tissue that the disease is apt to be detected.

In order to be able to recognize tuberculosis early it is necessary to bear in mind that the primary seat of the disease may occur in any organ or tissue which has a blood supply, and that the disease may exist without constitutional symptoms. Whenever a patient presents himself with any functional derangement, or with any deviation from the normal in any organ or tissue, one should, unless some other cause can be definitely made out, be on the look-out for tuberculosis.

The first place to look for the disease is, of course, the lungs, as that is the most frequent seat. In examining the lungs for tubercle one must not expect pronounced indications in the early stage. The two places in the lungs in which one will most frequently find the primary deposit are the apices and the bronchial glands. When the primary deposit takes place in the apices, if the deposit is quite small, both the clinical and physical symptoms will be very meagre. There may be scarcely any cough, and the physical signs of all except the extreme apices of the lungs will be normal. By carefully examining over and above the clavicle in front and along the upper border of the scapula behind, one will find such signs of deposit as may exist. A deposit, be it ever so small, is bound to impair the resonance and produce a prolonged expiratory sound. The first of these signs is always present, and can be detected by an acute and skillful ear, but the latter

[1] Times and Register, October 19, 1889.

will be absent upon shallow respiration, and can only be heard upon an inspiration deep enough to fill the air-cells of the affected parts. A diagnosis under such circumstances can, of course, never be a positive one, for we may have some impairment of resonance and prolongation of respiratory murmur without having a tubercular deposit. Where these symptoms exist and there is any deviation from the normal condition of health, it ought to be assumed that there is tuberculosis for the purposes of treatment at least.

When the primary deposit takes place in the bronchial glands, as it probably does in all cases in which the disease gains entrance into the system through the respiratory tract, it is extremely difficult to make an early diagnosis. In such cases there is not apt to be any deviation from the normal health until a gland becomes badly inflamed and breaks down. The only symptoms which show themselves are slight persistent cough of rather a ringing character and impairment of resonance along the spinal column along the edge of the scapula. This impairment of resonance can always be found when carefully looked for. The cough can be distinguished by its ringing character, and is apt to be aggravated by the taking of food. Where a cough persists for a long time and the patient tells you that it always occurs after meals, you ought at least to examine for enlarged bronchial glands. As soon as expectoration occurs the sputa ought to be examined for tubercle bacilli, which will always be found as soon as broken-down tissue appears. These cases mostly run a rapid course after the breaking down of the gland, and frequently a very acute course. They are quite often overlooked and misunderstood by the physician until breaking down has taken place, and then they excite wonder because of their sudden onset and rapid development. It is these cases that have led observers to the erroneous theory that bronchitis may develop into tuberculosis. They have also proven a stumbling-block to many in the way of accepting the theory of contagion. The very fact that a person may carry a tuberculous bronchial gland for years without developing constitutional symptoms of tuberculosis removes many cases so far from their source of infection that the relation between the new and the old cases is overlooked.

In the respiratory tract the pleura is often the primary seat of tuberculosis. An old pleurisy is apt to prove an excellent medium for the development of the disease. Unfortunately there is no way of telling a tubercular pleurisy from an ordinary pleurisy in the early stages. The general condition of the patient will throw more light on the subject than anything else.

After the lungs the next place in which to look for the primary seat of tuberculosis is the intra-abdominal region. In this region we

can have every organ and tissue primarily affected. Which of the organs and tissues in this region is most frequently the primary seat cannot be definitely determined from present data. I am myself under the impression that it lies between the peritoneum and the reproductive organs, and that the peritoneum is most frequently primarily affected in the male, and the reproductive organs in the female. My own clinical observations would at least indicate this. How frequently the reproductive organs in the female are the primary seat of tuberculosis is indicated by some recent researches of Dr. J. Witridge Williams, in which microscopic examination of tubes and ovaries removed in ovariotomies showed tubercle bacilli in a great many cases.[1] In few of these cases was there any evidence of tuberculosis during life. The peritoneum is also frequently the primary seat in females, as is evidenced by the experience of laparotomists, who frequently encounter it when they do not expect it. The vermiform appendix, the lymphatic glands of the intestines and the pelvis, the kidneys, the liver and the spleen may be the primary seat of the disease. Primary tuberculosis in the intra-abdominal region is indeed difficult to diagnose during its early stage. If the deposit is small, symptoms are apt to be so meagre that even the patient will not have his attention arrested. In primary tuberculosis of the reproductive organs in women we are apt to have the usual symptoms which go along with any affection of these organs, such as leucorrhea, backache, etc. Leucorrhea is popularly looked upon as a forerunner of consumption, and this idea has no doubt sprung from the observations of the masses for ages. Primary tuberculosis of the peritoneum can usually be diagnosed by such clinical symptoms as pain and dullness on percussion. It is, however, very apt to be overlooked or to be treated as a case of simple peritonitis. Tuberculosis of the lymphatic glands of the intestines and of the pelvis can sometimes be made out by palpation and by digital examination of the pelvis through the rectum and vagina. In the early stages there are scarcely any clinical symptoms, and in the later stages the diarrhea is so prominent that the case is apt to be mistaken for typhoid fever. It is these cases in which an acute tubercular inflammation of the lungs is apt to set in and which are apt to be returned as cases of typhoid pneumonia. Primary tuberculosis of the kidneys, liver and spleen is fortunately rare, and when it does occur is extremely difficult to make out. Examination of the urine has sometimes been the means of diagnosing tuberculosis of the kidneys by revealing tubercle bacilli.

After the intra-abdominal region we find tuberculosis most frequently located within the cranium as a primary deposit. In the cranium

[1] Tuberculosis of the Female Generative Organs, J. W. Williams, Johns Hopkins Hospital Reports, Vol. III. Nos. 1, 2, 3.

the meninges are most frequently affected, although there may be a deposit in the brain tissue. Primary deposit of tubercle within the cranium occurs at all times of life, but most frequently in childhood. This is probably due to the large amount of blood which goes to the brain in children, and also to the reflex irritation which is so readily set up in the brains of children. A very large proportion of the deaths which are returned as having been due to convulsions have really been due to tuberculosis. Primary tuberculosis in the cranium is necessarily difficult to diagnose until it has set up such disturbance as to make successful treatment impracticable. The earliest symptoms are probably headache and tardy action of the cerebral functions. The symptoms will, of course, differ according as the deposit is in this or that portion of the brain. When the tubercular deposit is in the brain substance, or the meningeal deposit is large enough to press upon the brain tissue there may be epileptic convulsions, which may continue at intervals for a long time without setting up any other symptoms. Closer observation may enable us some time in the future to lay down rules by which an early diagnosis can be made with some certainty.

Next in frequency to the intra-cranial region we find tuberculosis primarily deposited most frequently in the bones. This is known under various names, such as white swelling, hip disease, Pott's disease, cold abscess, etc. Any bone in the body can be affected, but the disease is most frequently located in the vertebra and in the large bones. As a rule, tuberculosis of the bone is easily diagnosed, but when it occurs on the inner surface of the vertebra there may be considerable difficulty. Where the affected bone is accessible, tenderness and swelling may be relied upon as diagnostic points, and when the inner surface of the vertebræ are affected pain and loss of weight are the earliest reliable symptoms. Tuberculosis of the inner surface of the vertebræ in the advanced stage may very closely resemble typhoid fever, as there may be diarrhœa from extension of inflammation to the bowels.

Tuberculosis of the skin, usually called lupus, is quite a frequent disease. It may occur in any part of the body. It can easily be recognized by the low, lazy character of the inflammation and by its obstinacy. Where there is any doubt this may be cleared up by a microscopic examination of broken-down tissue. Lupus is always a disease of long standing and of slow progress, and in time is followed by a secondary deposit in the lungs or brain.

Tuberculosis of the joints quite frequently occurs as a primary disease. Any joint may be affected, but the larger joints are more apt to be the seat of disease. There is some danger of mistaking a tuberculous joint for rheumatism, but careful examination will always

show the difference. Tuberculosis is usually confined to a single joint.

Primary tuberculosis of the perineum is of frequent occurrence. I have no doubt but that a fair percentage of anal fistulas are the result of broken-down tubercular deposit. Prior to the formation of the fistula the deposit is not apt to attract sufficient attention to bring it to the notice of a physician. A tuberculous fistula should be carefully diagnosed before operating, as careless cutting into a tuberculous tract may set up general tuberculosis. Where a diagnosis cannot be made otherwise it can be cleared up by examining the broken-down tissue under the microscope.

Primary tuberculosis of the ear occurs quite frequently. It may give rise to a running sore, when it may be diagnosed by a microscopic examination.

Primary tuberculosis of the pharynx and of the tonsils is comparatively rare, but occurs often enough to make it necessary to keep on the lookout for it. When it occurs in the pharynx it can be easily recognized by the little yellow buttery-like millet seed deposits which will be found studded over a somewhat anemic mucous membrane. In the tonsils it is more difficult to recognize. Chronically enlarged tonsils should always be treated with suspicion and when they have to be removed should be removed entire, as I know of at least one case of removal of enlarged tonsils where there is reason to believe that acute tuberculosis followed.

Primary tuberculosis of the larynx is a very rare disease. When it occurs it can easily be recognized by the anemic appearance of the parts and the yellowish deposit. Sometimes, however, it is extremely difficult for even an expert to determine between a tubercular ulcer and an epithelioma, and then the microscope must be depended on for a diagnosis.

Tuberculosis as a primary disease may be located in any tissue or organ to which blood is supplied. It occurs with sufficient frequency in the reproductive organs of males and in the internal reproductive organs of females to warrant calling attention to. It occasionally occurs in the heart and pericardium. It may occur in the eye and eyelids, in the nose and around the finger nails. In all of these places a positive diagnosis can only be made after most careful study of the case, and in some instances only after microscopic examination of the broken-down tissue.

Under ordinary circumstances tuberculosis only takes place in a person whose system is below par. It is, therefore, well for the physician to always be on the lookout for it in any patient who is run down and who is complaining of bad health only in a general way.

Considerable aid may be had from inquiries as to exposure to the disease. If a patient presents himself in a broken-down condition and gives a history of having been exposed to tuberculosis by living in the same house with it, or by being intimately associated with some one who has it, it is very important to examine every possible organ or tissue for a deposit and a careful search will be frequently rewarded with success in finding it. I have found it in such unexpected places as the eyelid, the little toe or the root of a finger nail. Wherever found it must be treated as a disease which will extend if permitted, and which always tends toward fatal termination.

RELATION BETWEEN DISEASES OF THE UPPER AIR-PASSAGE AND DISEASES OF THE EYE.

By J. G. Carpenter,

Stanford, Ky.

Phlyctenular conjunctivitis and keratitis are largely dependent upon a present or pre-existing rhinitis.

Megrim, ciliary neuralgia, asthenopia, passive congestions and inflammations, and reflex irritations of the eye, are often cured only by treating the disease in the upper air-passages upon which they depend. Treating the eye alone, or correcting the error of refraction, only partially curing or relieving some of the prominent symptoms, and finally treating the nasal chambers, effects the cure.

Diseases of the teeth have for a great while been considered causes of eye complications. Beside the various forms of rhinitis, causing disease of the eyes, the presence of a polypus, adenoid growth, deflected septum, a fibroid exostosis, polypoid hypertrophy of one or more turbinated processes, or adhesion of an hypertrophic turbinated process to nasal septum deserves notice. A foreign body or rhinolith will cause nasal stenosis, mouth-breathing, pressure symptoms, local and reflex irritation, passive congestion of nasal chambers, nasal duct, lachrymal sac, frontal, ethmoidal and sphenoidal sinuses, the eye, ear, trachea, antrum, pharynx, larynx, and reflex irritation of the heart, stomach, head, chest, brain and spinal cord.

The successful oculist must be an equally skilled rhinologist, or send his patients to the latter. Heterophoria and concommitant or periodic squints have been reported due to some intra-nasal affection.

An enlarged turbinated process, enchondroma, polyp, exostosis or

fibroid, may press on mouth of nasal duct and cause obstruction by direct pressure, or passive congestion; or the rhinitis may extend by continuity of tissue to the lining of the nasal duct, causing narrowing by tumefaction of the lining or by contraction through atrophy, and to the lachrymal sac, canaliculi and conjunctiva.

When we consider the lymphatic, vascular and nerve supply anatomically and physiologically of the eye, ear, nose and throat, and the pathology of diseases of the upper air-passages, the clinical history of individual cases, the relation of diseases of the upper air-passages and accessory cavities to diseases of the eye is easily explained.

The deep lymphatic vessels of the face are derived from the pituitary membrane of the nose, mucous membrane of the mouth, pharynx, and the contents of the temporal and orbital fossæ. They accompany the branches of the internal maxillary, and end in the deep parotid and cervical lymphatic glands; obstruction of the nasal chambers, causing pressure on the lymphatic vessels, would cause passive congestion of them in the orbit and its contents, as well as in the veins and arterioles.

Cases of keratitis, with ulcer of cornea, made no progress for weeks, until the hypertrophied turbinated processes were cauterized and shrunken, curing the nasal stenosis. Rapid improvement and recovery of eyes soon followed.

"The iris by its circumference is intimately connected with the choroid (external to this is the ciliary ligament) and to the cornea by the ligamentum pectinatum; the latter is derived from the membrane of Descemet, some fibres of which are connected with the forepart of choroid and sclerotic.

The pigment cells are several layers of small, round or polyhedral cells filled with dark pigment on the posterior surface of the iris, and continuous with the ciliary processess. The radiating fibres of the ciliary ligament arise at the junction of the cornea and sclerotic, and passing back are attached to the choroid opposite to the ciliary processes.

The ligamentum pectinatum joins the iris to the ciliary muscle and choroid, the longitudinal fibres of which run back to the retina; the iris gets its black coat from the retina (pigmented layer), so-called choroidal layer, and which goes from the iris to the optic nerve.

The arteries of the iris are derived from the long and anterior ciliary and from the vessels of the ciliary processes. The nerves of the iris are derived from the ciliary branches of the lenticular ganglion, and the long ciliary from the nasal branch of the ophthalmic division of the fifth.

After reaching the iris in the manner described above, they form a plexus around the attached margin of the iris; from this are derived

non-medulated fibres, which terminate in the circular and radiating muscular fibres. Their exact mode of determination has not been ascertained. Other fibres from the plexus terminate in a network on the anterior surface of the iris. The fibres derived from the motor root of the lenticular ganglion (third nerve) supply the circular fibres, while those derived from the sympathetic supply the radiating fibres."

Past experience and observation have demonstrated that conjunctivitis, keratitis, iritis, kerato-iritis, asthenopia, corneal ulcer, episcleritis, spasm of accommodation, and irritability and congestion of retina and choroidal lesions around the disk have for their predisposing cause long continued rhinitis, with constitutional dyscrasia or local disease in the nasal chambers, setting up reflex irritation and congestion of one or more tunics of the eye.

To the author there is no doubt that the nutrition of the eye is interfered with by these factors, and that chronic rhinitis from future observation will prove to be one of the factors causing heterophoria, and it is conducive to hyperopia and myopia.

Prof. S. C. Holtz[1] states: "In dealing with these heterophic conditions, we must not lose sight of the fact that a weak state of health, poor nutrition, nervous prostration by disease or over-work may weaken the ocular muscles, so that they are easily tired in the performance of their regular work."

Asthenopia from chronic rhinitis is one of the most annoying complications the patient can have. The writer knows no disease more prone to cause a weak state of health, poor nutrition, nervous prostration, sympathetic and reflex irritation and muscular asthenopia than chronic and subacute rhinitis of long standing.

The acuity of vision is often greatly improved by treating the nasal chambers and throat; and if an ophthalmoscopic examination and test of vision was also made with the rhinoscopic examination before and after treatment, many interesting points in relation to diseases of the upper air-passages and accessory cavities, to diseases of the eye would be revealed. Unfortunately many rhinologists are not ophthalmologists, and many oculists are not rhinologists.

Prof. S. D. Risley has said: "The more we know about the physiology, anatomy and pathology of the choroid, the better oculists we become. This axiom might be supplemented by stating that the more we study diseases of the eye in connection with diseases of the upper air-passages, we become the greater benefactors to our patients."

Asthenopia, photophobia, stillicidium lachrymarum and irritability of the retina, congestion of the conjunctivæ, contraction of the calibre of the tear-ducts are frequent accompaniments of chronic, acute and subacute rhinitis.

[1] Chicago Polyclinic Journal, January 21, 1893, p. 69.

The irritation and inflammation are not confined to the nasal chambers, but there may be extension to the accessory cavities, viz., rhinitis frontalis, rhinitis ethmoiditis, rhinitis maxillare, or sphenoiditis.

In acute and subacute rhinitis of the severest types, in la grippe, measles and scarlatina and diphtheritic rhinitis, the above symptoms exist in lesser or greater intensity. In la grippe and the exanthemata and diphtheria we have the local inflammation of a rhinitis plus the constitutional dyscrasia with the peculiar micro-organisms, ptomaines, leucomaines and toxines.

In two cases of measles of the severest form that had been submitted to ophthalmoscopic examination weeks before the attacks of measles, and whose eye examinations had been repeated to study the fundi in their normal and physiological states, and whose eyes were emmetropic, viz., absence of fundus disturbances and absence of symptoms of asthenopia. Parallel rays focus on the retina when accommodation is at rest under mydriatics. The ophthalmoscope reads emmetropia. Vision $= \frac{20}{xx}$. Examination in one case, during the intensity of the measles, revealed conjunctivitis, asthenopia, stillicidium lachrymarum, photophobia, swollen puncta lachrymalia and intense hyperesthesia of the retina. Even under cocaine the fundus could not be examined until the temperature and pulse returned to normal, then the retinal veins were enlarged and tortuous. The retina was of a deeper red than formerly, the optic papilla had a choked, striated and light-red or pink color. There was also present the typical acute rhinitis, with nasal stenosis from tumefaction and edema of the septum and turbinals.

Another case of measles showed similar disturbance of retina and disk and nasal complications. Another patient, before the attack of measles, had never had any symptoms of asthenopia or blindness; about three months after an attack of measles came to the writer to have the eyes examined. Vision was impaired in both eyes; vision of the left eye was $\frac{20}{xxx}$, the right about $\frac{5}{cc}$. Asthenopia and impaired vision began with and increased from the decline of measles until now. Ophthalmoscopic examination reveals myopia in left eye and choroiditis posterior in the right.

The cornea, iris, choroid, ciliary processes and ciliary muscle, and sclera, no doubt, are congested; relaxed during the exanthemata and repeated attacks of acute and subacute rhinitis, and, if neglected, undergo degenerative changes.

Jackson and Gleason[1] make this statement: An anterior hyper-

[1] Essentials of Diseases of Eye, Nose and Throat.

trophy of the middle turbinated body pressing on the septal nerve, which is a branch of the ophthalmic, frequently causes reflex eye symptoms, such as chronic conjunctivitis, slight paresis of accommodation and irritable retina.

De Schweinitz[1] states: In some cases of retinal irritation the cause seems to be dependent upon changes in the naso-pharynx; for example, engorgement of the septum, associated with myxomatous and hypersensitive spots, vaso-paretic and infiltrated turbinals, and secondary changes in the pharynx and larynx. Just as areas of hyperesthesia in these regions may be a part of a general neurosis; so, also, they may be both directly and indirectly connected with a hyperesthetic condition of the retina, and the eyes will not grow comfortable until the nasal disease is cured. It is probable that retinal irritation may sometimes be the forerunner of organic changes in the optic nerve. (Loring.)

Professors S. D. Risley, Edward Jackson and G. E. de Schweinitz have for some time realized the importance of treating the diseases of the naso-pharynx with the eye affection.

Miss C. has atrophic rhinitis, with large, decomposing encrustations almost occluding the nares, headaches, pains, heat, redness of eyes, lines run together when reading, lachrymation; vision of each eye $\frac{20}{l}$. Four weeks after treatment of nasal chambers, vision increased to $\frac{20}{xxx}$ in each eye, and — 0.25D. Cyl. axis 90 each eye, make vision $\frac{20}{xx}$.

J. —— had chronic rhinitis with frequent subacute attacks and chronic otitis media (suppurative), with profuse otorrhea, deafness, tinnitus aurium, and chronic and subacute conjunctivitis with stillicidium lachrymarum and asthenopia, the sequelæ of scarlet fever. Constitutional treatment, with local treatment directed to upper air-passages, cured them; the conjunctivitis and eye symptoms improved *pari passu*, as the nasal disease advanced to recovery.

Mrs. R. had hypertrophic rhinitis, nasal stenosis with polyps in left chamber and antral disease of left side; headaches, asthenopia, vision $\frac{20}{xxx}$ in both eyes, and general health much impaired. Cauterization of turbinated processes, removal of the myxomata which had caused pressure, absorption and caries of a portion of the inner wall of antrum and the carious bone, cured the headache, asthenopia, and increased vision to $\frac{20}{xx}$.

[1] Diseases of the Eye.

C. T., aged 55 years, has had disease of the upper air-passages and chronic suppurative otitis media since infancy; now has chronic hypertrophic rhinitis, nasal stenosis and enchondroma of right side, headaches, impaired vision, lines run together when reading and many other symptoms of asthenopia, vision $\frac{20}{xl}$ plus, in the R. E. is $\frac{20}{xxx}$ plus in the L. E. Local treatment directed to nasal chambers and drum cavities cured them and relieved the headaches and much of the asthenopia and plus I.25D. Sph. R. E. and plus I.D. Sph. L. E. brought vision to $= \frac{20}{xx}$.

J. ——, aged 16 years, had trachoma. As this latter was about well a phlyctenular keratitis attacked the right eye, followed by active and severe kerato-iritis, even with the best local and constitutional treatment. The acute ended in the chronic form and made little or no progress for weeks. Patient had an enlarged hypertrophied turbinated process of the right side, causing nasal stenosis and imperfect drainage of the tear ducts. Cauterization of the turbinated process caused a most wonderful change for the better in the diseased eye in forty-eight hours, and the patient has since made a continuous and rapid recovery.

Miss W., aged 16 years, has atropihc rhinitis with encrustations almost blocking the nasal chambers, and tenacious muco-purulent secretion, causing great local irritation, frequent headaches, impaired vision, lines run together when reading, eyes burn and feel dry; has other symptoms of asthenopia; vision, $\frac{20}{1}$ plus. Local treatment directed to the rhinitis for two weeks has improved vision to $\frac{20}{xxx}$.

W. S., aged 20, has had rhinitis since infancy, now has prominent hypertrophies of middle and inferior turbinated processes, nasal stenosis, mouth breathing, headaches, cold hands and feet, redness of eyes, lines blurring, and usual symptoms of asthenopia. Has had eyes tested with and without mydriatic; is hyperopic; has spent much time with a prominent oculist in a large city, but the disease in the upper air-passages was "said to have no connection or nothing to do with the error of refraction and concomitants;" still the glasses prescribed failed to give comfort. Since the upper air-passages have been cured, the glasses prescribed give satisfaction.

J. E., aged 55 years, has chronic hypertrophic rhinitis, nasal stenosis, headaches, impaired vision, $\frac{20}{1}$, and asthenopia. Treatment directed to the nasal chambers cured the rhinitis and eye symptoms, and with plus 3D. Sph. vision is $\frac{20}{xx}$.

Mrs.——, aged about 46 years, has had rhinitis for years, with recurrent acute otitis media and hay fever; has hypertrophic rhinitis of middle and inferior turbinated processes of both chambers, and nasal polyps from middle turbinated body, left side, nasal stenosis; is a mouth-breather, has had much annoyance and difficulty in getting glasses suited to her eyes, and has had three pairs + spherical in her hand-satchel; and when she sews or reads changes as often as the eyes get tired to another, and still another pair. She has been the prey of the spectacle peddlers and sharks. Under atropia, examination reveals hyperopia with astigmatism; curing the disease of rhinal passages, then correcting the error of refraction gave relief.

V. R. E. with plus 24 S. $= \frac{20}{xxx}$, combined plus I. 48 cyl, axis 80 $= \frac{20}{xx}$. L. E. with plus 24 S. $= \frac{20}{xxx}$, combined with plus 148. Cyl, axis .0 $= \frac{20}{xx}$. Patient acknowledges the cure, and is pleased with the correction.

The nerve connection between the upper air-passages and the eye are the following, viz.: The olfactory nerve is distributed to the upper third of the septum, to the roof of the nose, to middle and superior turbinated bones and surface of ethmoid in front of them. The motor-oculi nerve supplies all the muscles of the orbit except the superior oblique and external rectus, and sends motor filaments to the iris and ciliary muscles, and communicates with the ganglionic branch of the nasal nerve, frequently blends with the ophthalmic division of the fifth, and gives off a branch to assist in the formation of the lachrymal.

The ophthalmic supplies the eyeball, the lachrymal gland, the mucous membrane of the eye and the nasal fossæ, is joined by filaments from the cavernous plexus of the sympathetic, communicates with the third and sixth nerve, and is frequently joined to the fourth. The nasal nerve branch of the ophthalmic comes down through the slit made by the side of the crista galli into the nose, where it divides into two branches—an internal and external. The internal branch supplies the mucous membrane near the fore part of the septum of the nose. The external branch supplies a few filaments to the mucous membrane covering the fore part of the outer wall of the nares as far as the infesior spongy bone, the integument of the ala and the tip of the nose, and joins with the facial nerve.

The long ciliary nerves, two or three in number, branches of the nasal and ophthalmic, join the short ciliary nerves from the ciliary ganglion, pierce the posterior part of the sclerotic, run forward

between it and the choroid, and are distributed to the ciliary muscles and iris.

The infra-trochlear branch of the nasal is joined by a filament from the supra-trochlear nerve, passes to the inner angle of the eye, supplies the integument of the eye-lids, side of nose, the conjunctiva and lachrymal sac and canaliculi and lachrymal duct.

The frontal through the supra-trochlear branch joins the infra-trochlear branch of the nasal; is distributed to the currugator supercilii and occipito-frontalis, orbicularis palpebrarum muscles and integument of forehead.

The long ciliary nerves, branches of the nasal (of the ophthalmic) join the short ciliary nerves from the ciliary ganglion, pierce the posterior part of sclerotic, and are distributed to the ciliary muscle and iris.

The ciliary ganglion. Its branches of communication are: One, the long root, from nasal branch of the ophthalmic; the short root is from the third nerve for the interior oblique muscle; the sympathetic root is a slender filament from the cavernous plexus of the sympathetic, and receives a filament from the spheno-palatine ganglion.

The branches of distribution are the short ciliary nerves which are joined by the long ciliary from the nasal, and are distributed to the ciliary muscle and iris.

Branches of the superior maxillary nerve are: The posterior dental which sends filaments to the lining membrane of the antrum, the anterior dental sends filaments to the lining membrane of the inferior meatus, communicates with the posterior dental and with the nasal branches from Meckel's ganglion. The palpebral branches supply the orbicularis palpebrarum, integument and conjunctiva joining with the facial and malar branch of the orbital.

The nasal branches supply the integument of side of nose and join with the nasal branch of the ophthalmic. Meckel's ganglion has four groups: the ascending passes to the orbit, and the descending to the palate, tonsil and lining membrane of the nose.

The anterior, while in the posterior palatine canal gives off inferior nasal branches which enter the nose through openings in the palate bone; ramify over the middle meatus, the middle and inferior spongy bone. At its exit from the canal a palatine branch is distributed to both surfaces of the soft palate, and communicates in front with end of naso-palatine nerve. The middle palatine nerve descends in same canal to posterior palatine foramen and sends branches to soft palate, uvula and tonsils. The posterior palatine nerves supply the levator palati, azygos uvulæ muscles, soft palate, tonsils and uvula. The middle posterior palatine joins with the tonsillar branches of

the glosso-pharyngeal to form the plexus around the tonsil (circulus tonsillaris), and supply the palato-glossus and palato-pharyngeal muscles.

Internal branches go to the septum and outer wall of the nasal fossæ and lining of the posterior ethmoidal cells. The Vidian connects Meckel's ganglion with the facial nerve in its centre, it distributes filaments to the lining membrane at back part of roof of nose and septum, and that covering the end of Eustachian tube.

The naso-palatine nerve enters nasal fossæ with the other cranial nerves, passes across roof of nose below orifice of sphenoid to septum, runs along lower part of septum to anterior palatine foramen between the periosteum and mucous membrane, joins the anterior palatine nerve, and sends small filaments to mucous membrane of septum. Pterygo-palatine is distributed to mucous membrane of upper part of pharynx behind the Eustachian tube.

The sixth nerve is joined by several filaments from the carotid and cavernous plexuses by one from Meckel's ganglion, another from the ophthalmic nerve, and is distributed to ocular surface of external-rectus.

The glosso-pharyngeal is a nerve of sensation, as well as a nerve of taste; it is distributed to the mucous membrane of the pharynx, fauces and tonsil.

MEMORANDUM.

CASE OF COMPOUND FRACTURE OF THE SKULL.

The following is a brief report of what was to me a very interesting case: A. R., male, aged 4 years, fell under a horse and was tramped upon, the calk of the shoe tearing back a large horseshoe-shaped flap of the scalp. In the apex of the wound was found a comminuted fracture with very extensive depression.

Removal of the loose fragments left a deficiency in the skull over an area of about one by one and a half inches. The dura was not penetrated, but was slightly lacerated at one point by a fragment of the inner table turned back under sound bone.

The fracture involved the parietal and frontal bones, just above the temporal ridge, the longest diameter extending along the coronal suture.

The cicatrix is eight inches long, the extremities about four inches apart.

Although from a combination of circumstances it was quite four hours until the depressed bone was elevated, at no time was the child unconscious; he exhibited no symptoms of compression, nor did he suffer from shock.

Recovery from ether was rapid, and though very weak at first he gained strength without any recourse to stimulation. The tempera-

COMPOUND FRACTURE OF THE SKULL.

ture ranged within a few tenths of 100°, jumping to 102.3 on the fifth day, and falling back the next. On the fourth day there was slight myosis, photophobia and intolerance of noise.

The flap adhered quickly, and where retraction of the scalp had left gaps granulation and cicatrization progressed steadily. Convalescence was exceedingly rapid.

GETTYSBURG, PA. HENRY STEWART, M.D.

ALUMNI NOTES.

A western association of the Alumni of the University of Pennsylvania has been organized recently, with its headquarters at Chicago. There are about seventy-five graduates in and around the white city, and it is expected that the present effort will result in a permanent

organization. The officers of the "Northwestern Association" are as follows: *President*—Charles Gilman Smith, D.D. *Secretary*—Edward C. Knight, B.S. (1005 Masonic Temple, Chicago). *Treasurer*—William R. Cisna, A.M., M.D. *Vice-Presidents*—Herman Haupt, Jr., M.D., Ph.D., Professor H. Allen, Rev. E. G. Hirsch, R. Dillon, D.D.S., George Henderson, Ph.B.

The local Alumni Society of Philadelphia and its vicinity, organized more than a year ago, is in a flourishing condition. The four annual meetings are participated in by four hundred members. These meetings are of a most informal character, and have always been well attended. A number of small tables are provided, with pipes, light refreshments and beer mugs to be discussed, while the College Glee or Banjo Club add their quota to the entertainment. The dues are $1 a year, and an additional fee of twenty-five cents is charged for each "smoker" attended. It is hoped that other local societies will be formed in the larger cities, and offer similar opportunities to graduates to be brought into closer relations with each other. The officers of the Philadelphia Alumni Society are as follows: *President*—Roland G. Curtin, M.D. *Vice-Presidents*—S. D. Risley, M.D., John H. Packard, M.D. and Albert G. B. Hinkle, M.D. *Recording Secretary and Treasurer*—Elwood R. Kirby, M.D. *Corresponding Secretary*—B. Franklin Stahl, M.D. *Executive Committee*—Judson Daland, M.D. (chairman), Richard Norris, M.D., Charles W. Burr, M.D., Henry W. Cattell, M.D., and Frank W. Talley, M.D.

The data which has already been secured in answer to a circular from the corresponding secretary of the Philadelphia local society, Dr. B. F. Stahl, in regard to the date of graduation, etc., will be made use of by the committee who have in charge the preparation of a Matriculate Catalogue. Those graduates, therefore, who have replied to this circular letter need not reply to the questions to be found in the October number of the MAGAZINE. From time to time it is expected that additional information will be supplied. A committee from the College Department of the University have spent many years and thousands of dollars in securing data for a similar catalogue of the graduates of their department.

These questions are intended to elicit information in regard to the full name of the alumnus, address, educational advantages, honorary degrees and prizes, hospital, civil or military service, and whether he has been a teacher or writer, as well as the date of matriculation and graduation.

Dr. C. A. Hamann, who graduated in the class of 1890, has accepted the position of Lecturer on Anatomy in the Western Reserve University of Cleveland, Ohio.

EDITORIAL.

THE SEVENTH DECENNIAL REVISION OF THE PHARMACOPŒIA.

THE new revision of the Pharmacopœia will go into effect January 1, 1894. It is to be regretted that four years will have elapsed before the physicians and pharmacists of the country reap the benefit of the reforms wrought by the convention which met in Washington in 1890 for the purpose of revising the standard. In running over the list of drugs we find that ninety, previously official, have been dismissed, and that eighty-eight new ones have been introduced. Among the important articles which have been made official in this revision may be mentioned: Acetanilide, cocaine hydrochlorate, eucalyptol, hyoscine hydrobromate, menthol, naphtol, paraldehyde, resorcin, salol, sparteine sulphate and terebene. Among the articles dismissed, perhaps the most noteworthy, are malt and its extract, all the abstracts, ignatia, oil of amber, inspissated ox-gall, sodium santoninate and æther (74 per cent.). It is certainly gratifying to note that the stamp of official recognition has not been put upon hundreds of synthetic compounds which can only be produced by a patented process, and of which antipyrine is a good example.

The Latin titles of many of the drugs have been modified; in the new revision acidum arseniosum becomes acidum arsenosum, brayera becomes cusso, erythroxylon becomes coca, hydrargyri iodidum viride becomes hydrargyri iodidum flavum, mistura asafœtida becomes emulsum asafœtida and sapo viridis becomes sapo mollis. The English titles have also been changed in many instances, notably the designation of the chemical compounds, in which the basylous or metallic component has been placed first; thus sodium chloride, silver nitrate, lead oxide, etc., replace chloride of sodium, nitrate of silver, oxide of lead, etc. Not many radical changes have been made in the strength of the official preparations. The 50 per cent. phosphoric acid, however, which was heretofore official, has been replaced by the so-called syrupy acid, which contains about 85 per cent. of acid.

On account of the great variation in the strength of fluid extracts and tinctures made from the crude drugs, we regret that processes of assay have been applied only to cinchona, nux vomica and opium.

Throughout the work the metric system has been adopted as the standard of weights and measures. In the sixth decennial (1880) revision an effort was made to have this system made official, that it might be used in designating the proportions of the ingredients in the

various formulæ. This met with considerable objection, however, and the metric system was not adopted; but as it was not considered advisable to continue the use of the fluid measure and Troy weight, the quantities were given in parts by weight, leaving it to the pharmacist to use any system of weights he chose, except in the case of fluid extracts, in which, quantities were expressed in metric terms. The metric system has grown so much in favor in this country that in the seventh revision we are pleased to note that "parts by weight" has entirely disappeared, and that grammes and cubic centimetres are found instead.

The convenience and simplicity of the metric system and the desirability of having units of weights and measures which will be recognized the world over, should commend the introduction of this system to every physician and pharmacist.

The adoption of the Pharmacopœia as a standard authority by the government and by a number of the States lead the committee to use the word "official" in place of "officinal" to designate pharmacopœial substances and preparations.

Many changes which have been made in the present revision will no doubt meet with honest criticism, but when the work is viewed as a whole it must be admitted that it is far in advance of its predecessor, that it fairly represents the present status of American pharmacy, and that it reflects great credit upon all who constituted the Committee on Revision.

A MATTER OF INTEREST TO THE ALUMNI OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLNANIA.

In the last issue of the Magazine, under the head of *Alumni Notes*, will be found an unusual offer, effected by the co-operation of the Alumni Society with the University of Pennsylvania Press, whereby it will be possible for every graduate of the Medical Department of the University to become a subscriber to the Magazine and a member of the Alumni Society by paying an annual fee of *two dollars*. In addition, it is proposed to devote a certain amount of space in the journal, from time to time, to topics of general interest to the Alumni. All communications to the new department should be addressed to Dr. Joseph P. Tunis, Secretary and Treasurer of the Alumni Society, 129 South Eighteenth Street, Philadelphia.

It is earnestly hoped that the movement thus effected will be the means of adding a very large proportion of the 11,000 graduates of the Medical Department to the roll of the Society, and of enlisting the interest of all in the continued welfare of their *alma mater*.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.

Ice in the Treatment of Pneumonia.

Mays (*Boston Medical and Surgical Journal*, June 22, 1893), reports fifty cases of pneumonia by different observers which were treated by the local application of ice to the affected part. He concludes that ice acts beneficially by contracting the pulmonary capillaries, and possibly also by causing absorption of the exudation. Its influence on the symptoms has been beneficial. The pain, difficult breathing and fever are all ameliorated. He has never seen any harm follow the treatment. There are 156 published cases of pneumonia treated by the local application of ice with a mortality of 3.2 per cent.

Early Extirpation of a Sarcomatous Kidney.

Israel (*Deutsche medicinische Wochenschrift*, June 1, 1893), reports the diagnosis and subsequent extirpation of a sarcoma the size of a cherry in a kidney. The patient was a six-year-old girl who had five severe attacks of hematuria and in the interval blood copuscles in the urine. The blood was found to come from the left ureter. On palpation the left kidney was found to be slightly longer than the right. He discovered on the middle of the anterior border a slight prominence which increased the antero-posterior diameter of the kidney and also increased its consistency. The kidney was removed and a tumor the size of a cherry found in the position diagnosed.

The Etiology of Acute Rheumatism.

Sahli (*Deutches Archiv. für klinische Medicin*, Vol. LI, Parts 4 and 5), reports a case of acute articular rheumatism whhic he observed during life and made a post-mortem and bacteriological examination upon. He concludes (1) That in a case of articular rheumatism not complicated by pus formation, he found a bacterium closely resembling the staphylococcus in the diseased joints, in the endocardial thickening, in the pericarditis, pleuritis, swollen bronchial glands and in the blood of the left heart. (2) It is probable that articular rheumatism is caused by a mild pathogenic bacterium. (3) The bacteriological researches make it possible that the so-called complications—endocarditis, pleuritis, etc., are really localizations of the disease and not true complications. He examined the blood and joint fluids of several cases of acute articular rheumatism and of erythema nodosum during life, and these examinations confirm him in the belief that these affections belong to the infectious diseases.

Diseases of Vaccination.

Epstein (*Jahrbuch für Kinderheilkunde*, Vol. xxxv, Part 4), reports two cases of purpura and fourteen cases of erythema which complicated 430 vaccinations. The hemorrhagic cases were characterized by fever, restlessness, loss of appetite and true cutaneous hemorrhages. The hemorrhages appeared in from the fourth to the eleventh day after vaccination. They passed through the usual changes of color common to cutaneous hemorrhages, and were absorbed in from six to eighteen days. The cases of erythema appeared from the fifth to the eleventh day; the greatest number appearing on the seventh day. It usually appeared earliest on left side of the arm upon which the vaccination was made. The erythema resembled closely the rash of measles. The color varied from a dark rose to carmine red. The eruption did not appear on all parts of the body at once, but sometimes took two or three days to develop. There was no rise of temperature. The rash which appeared first disappeared first, and the whole had disappeared in from six to eight days.

Incision and Drainage in Pyopericardium.

Sievers (*Zeitschrift für klinische Medicin*, Vol. xxii, Parts 1 and 2), concludes an interesting article on this subject as follows: (1) That an operation on purulent pericarditis is entirely justified, and that the operation does not interfere with the work of the heart, and that it may save the life of the patient. (2) While entire recovery may occur in some of the cases (four cases in nine), much improvement in the sufferer's condition will occur where the pericarditis occurs as a complication of pyemic conditions. (3) The operation is best made in the fourth or fifth intercostal space one centimetre to the left of the sternum. The cavity should be drained, but not washed.

The Complication of Pregnancy with Chronic Heart Disease.

Leyden (*Zeitschrift für klinische Medicinische*, Vol. xxxiii, Parts 1 and 2, 1893,) has written on the above subject from the standpoint of the clinician. His remarks are exhaustive and are based upon the observation of 137 cases found in literature, and twenty personally seen. He concludes: (1) Women with heart disease conceive as easily and frequently as in health. (2) Spontaneous abortion much more frequently occurs in women with heart disease than in health. (3) Pregnancy in such women is dangerous in that in some cases the heart disease is made worse, and in bad cases may prove fatal. (4) The death holds an indirect relation to pregnancy and labor (40 per cent. in severe cases), occurring least frequently in pregnancy, more frequently during labor, and most frequently shortly after labor. (5) The heart lesion, most frequently accompanied by severe symptoms or death, is disease of the mitral valve, especially mitral stenosis. (6) The immediate cause of death is usually edema of the lungs or heart collapse, death occurring either during labor, or a longer or shorter time after. Those cases which appear to have passed through labor safely remain weak, with a lack of cardiac compensation, for some time. (7) The physician should advise women with heart disease against marriage or frequent pregnancies. (8) When failure of the heart occurs in the course of pregnancy artificial interference with its course is indicated. (9) The result of abortions performed are better in such cases when they are not left until the last moment. (10) The careful use of chloroform in cases during labor may be allowed.

Chloroma and its Relation to Lukemia.

Dock (*The American Journal of Medical Sciences*, August, 1893), reports a case of this rare disease, together with a most careful review of all the cases heretofore reported, a total of sixteen cases. The analysis of these cases is briefly as follows: The average age was 15.26 years; ten males and six females were affected. Exciting causes are rare. The family histories were good. The early symptoms are pallor, emaciation, nose-bleed, tinnitus, exophthalmus, etc. Later symptoms were deafness, dyspnea, anemia, edema, hemorrhages, diarrhea or constipation, disgust for meat, enlargement of spleen and thyroid. All the blood symptoms which occur in leukemia were present in those cases where the blood was examined. The course of chloroma is usually shorter than in leukemia. He believes that the disease should for the present be classed along with leukemia, pseudo-leukemia and mycoloma. He believes the cases occurring thereafter can be diagnosed upon the following points: Its appearance usually under twenty years; anemia without evident cause with loss of strength and emaciation; hemorrhages in skin, mucous membranes and internal organs, rapid pulse, exophthalmos without the special symptoms of Basedow's disease and with a tumor in the orbit, tumors under the temporals, or on the cranium, or on other parts of the body. Before the appearance of tumors the diagnosis would be doubtful, but after their appearance it could be made almost with certainty.

Diaphragmatic Pleurisy.

W. S. Fenwick (*The Lancet*, July 3, 1893), reports five cases of pleurisy of the under surface of the lung, which closely simulated acute abdominal disease, and in which the diagnosis was made with difficulty:

Case I.—A man, aged 34, was suddenly seized with severe pain in the right hypochondrium. He was found leaning over a chair and suffering intensely. The superficial abdominal muscles were firmly contracted, and the least pressure over the hypochondrium or epigastrium was attended with the greatest suffering. The respiration was almost entirely costal and shallow. Expiration was accompanied by a grunt. The liver appeared to extend below the margin of the ribs. The temperature was about 103°. No alteration occurred until the third day, when dullness at the right base of the lungs was discovered. This sign rapidly developed until a large effusion could be demonstrated in the right base. With the physical signs of pleurisy, the case began to improve. The case was first diagnosed as inflammation of the gall-bladder.

Case II was admitted with what was supposed to be perityphlitis. After bathing in the river he was suddenly seized with a chill and severe pain in the right iliac fossa. Vomiting was constant, with high fever. The bowels were confined. The ileo-cecal region was exceedingly tender. No tumor could be demonstrated. There were no chest signs. On the fourth morning a soft friction sound was heard over the right base. The case rapidly developed into one of pleurisy over the right lower lobe.

Case III.—An old phthisical case was suddenly seized with excruciating abdominal pain. The patient lay with knees drawn up, and was the picture of one with peritonitis. Death occurred from supposed peritonitis, but at the autopsy recent diaphragmatic pleurisy was discovered, and the peritoneum was normal.

CASE IV.—A boy was suddenly seized with pain in the abdomen and vomiting. On admission the temperature was 103°, the pulse was full, the abdomen exquisitely tender to pressure. The case looked like one of peritonitis. On the fourth day chest signs appeared. A pleurisy of the left base developed, and the case improved with undoubted signs of effusion.

CASE V closely resembled Case II, and recovered.

These abnormal signs, the author explains, upon the hypothesis of reflection along the line of the intercostal nerves, and manifestation of pain at the extremities of the nerves. The pain is usually more superficial than that observed in diseaase of the abdominal viscera, and is markedly increased by the respiratory movements. No tumor can be found, and rectal examination is negative. Many of the diagnoses can be determined only on the appearance of serious effusion at the base of the lung.

INJURY TO THE EYES FROM WATCHING ELECTRIC WELDING.

HEWETSON (*The British Medical Journal*, June 24, 1893) reports the following cases: A party of experts had been watching the process of electric welding for two and a half hours. They were all affected in about the same manner but in varying degrees. The first patient was in bed suffering excruciating pain in the head and eyes. There was so much spasm that he could not open his eyes. The pupils were contracted and the conjunctiva injected. The treatment was instillation of 10 per cent. solution of cocaine and a three-grain solution of alum. He fell asleep in a short time, and awoke entirely relieved without any photophobia. All the other cases recovered without treatment. The ophthalmoscope showed no changes in the vessels. The cause of these attacks was watching the process with improperly-arranged goggles. The best protection for the eye is a shield made of wood 10 x 12 inches in size. In the centre is a hole 5 x 3½ inches; in this hole are set a series of five sheets of ruby glass. The shield is held before the eyes with the left hand, and thoroughly protects them. It is better than any goggles yet patterned.

GANGLIONIC FEVER.

MOUSSONS (*Revue Mensuelle des Maladies de l'Enfance*, June, 1893) reports two cases of this disease which was first described by Pfeiffer in 1889, and Starck in 1890. The disease is said to occur in children between 2 and 10 years. After a few days of malaise there is a sharp fever, accompanied by restlessness, headache and vomiting. There is pain on movement of the neck, and difficulty in deglutition. On examination of the sides and back of the neck a great number of engorged glands are discovered; they are tender, moderately enlarged, and are distinct one from the other. Sometimes the enlargement is unilateral, but almost always it is bilateral; sometimes the submaxillary region is also involved. After a few days all the symptoms are less intense, a little fever may persist, with hacking cough, some pain in the abdomen in the region of the umbilicus; finally there is obstinate constipation. One recognizes at once the enlargement of the lateral and posterior cervical glands, while those of the axilla and groin are normal. The liver and spleen may be slightly enlarged. There is often great emaciation and loss of strength. The author has noted in his cases some prolongation of the breath sounds. In his case there was a distressing cough, which, with the change in the breath sounds, was supposed to be due to enlargement of the peritracheal glands. The cause of the disease is unknown. Starck believed it to be directly due to constipation, which favored the absorption of toxic material from the intestinal canal.

SURGERY.

UNDER THE CHARGE OF
J. WILLIAM WHITE, M.D.,
ASSISTED BY
G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Treatment of Retropharyngeal Abscess.

Plucos (*Semaine Médical*, 1893) advocates the treatment of retropharyngeal abscess by incision through the skin, and not through the mouth; this method, which he points out has been adopted by Cheyne and Pollard, is preferable for several reasons. He quotes cases showing the danger of wounding the carotid, which may be displaced by the abscess, and the possibility of immediate asphyxia from aspiration of pus into the lungs, or of broncho-pneumonia at a later date owing to the same accident. As to the site of the cutaneous incision, he recommends that posterior to the sterno-mastoid, and does not use the knife after the cutaneous structures have been divided. There is no difficulty or danger in giving the anesthetic when the incision is so made.

Strangulated Hernia Involving the Appendix Vermiformis.

Pollosson, in the *Lyon Médical*, May 21, 1893, gives the histories of two cases in which the appendix was strangulated in the femoral canal, and also of a third, probably of the same nature. He presents the following conclusions:

I. Femoral hernias occur whose whole contents consists of the ileo-cecal appendix.

II. These hernias may become the seat of strangulation.

III. The symptoms are sometimes those of strangulated enterocele and sometimes of strangulated epiplocele.

IV. The treatment is similar to that of ordinary strangulated hernia. In operating: (1) The removal of adhesions and constrictions is only necessary when the appendix cannot be dragged into view; (2) the appendix is to be removed after ligation with catgut of the healthy upper portion; (3) the stump should be further closed with a few sutures or touched with the thermo-cautery.

Suprapubic Prostatectomy.

Tuffier (*Le Mercredi Médical*, January 4, 1893), reported to the Société de Chirurgie a case of enlarged prostate upon which he had operated successfully. The man was 52 years old and had been suffering for six years. The bladder having been opened above the pubes, a pedumculated enlargement of the middle lobe of the prostate was seen and removed by a V-shaped incision. The wound was united by sutures placed antero-posteriorly, thus drawing the prostatic substance back and away from the opening of the urethra. The prostate was sutured with catgut, as was also the bladder, but over the latter sutures additional Lembert sutures of silk were inserted and the abdominal wound closed without drainage. A catheter was left in the urethra and removed on the sixth day; hematuria occurring the catheter was replaced and allowed to remain a week. The results of the operation were excellent, the patient urinated without pain or difficulty, and the prostate diminished considerably in volume.

A Case of Symphysiotomy on a Man.

J. Albarran (*Annales des Maladies des Organes Génito-Urinaire*, March, 1893) presented to the Academy of Medicine of Paris a patient on whom he had performed symphysiotomy in order to gain access to the anterior wall of the bladder. The incision extended from three-fingers' breadth above the pubis down to the dorsum of the penis. The lower end of the incision was Y-shaped, each arm of the Y being one centimetre long. A separation of forty-two millimetres was obtained, the bladder incised and a papillomatous tumor seen inside. The larger portion of the tumor was removed in order to gain better access; free bleeding only occurs when the *base* of a tumor is attacked. By means of the knife and scissors a piece of the bladder embracing the tumor, and six centimetres long by four broad, was excised. The wound was closed by an internal row of catgut sutures uniting the mucous surface, and an external one of silk after Lembert's method. A catheter was left in the bladder, and bleeding from the pre-vesical venous plexus of Sanborini was stopped by tamponing with gauze.

Recovery was prompt and satisfactory.

The Treatment of Spina Bifida.

Monod, in *Le Mercredi Médical*, March 29, 1893, discusses the treatment of spina bifida, particularly in relation to the excision of the nerves contained in the sac. A child aged 25 days was brought for treatment. The tumor was flat, the size of a small mandarin orange, and the skin covering it in places very thin. On incising it the opening communicating with the spinal canal was seen; it admitted the pulp of the index finger. A cord of nerves came out through this opening; it was loosened at its distal extremity from the sac, and an attempt was made to replace it; this was impossible and it was excised. A single catgut ligature stopped the bleeding from the cut cord. The vertebral orifice was closed with catgut sutures by uniting over it the muscles. The skin was then united by silkworm gut. There was no paraplegia, and union of the wound occurred by first intention. Two months later the child died of a rectal prolapse, present since birth, and persistent diarrhea. The author urges immediate operation if the condition of the child is good rather than waiting until it gets older.

On the Treatment of Empyema.

In the *British Medical Journal* of July 22, 1893, Chapman gives his views on the treatment of empyema. He has operated with success in seventeen cases. The spot for incision should be determined by the peculiarities of the case. As there is always a preliminary puncture over the maximum seat of dulness, the incision should be also over this region, to include the puncture. Both should be made as far back as possible. In practice he finds the spot situated, most often, at about the upper edge of the ninth and tenth ribs, in a line with the angle of the scapula. By two strokes of the knife the chest is opened, and two fingers inserted as far as possible. He advises the insertion of a finger once a week during the subsequent dressings, even if all appears to be going on well. Counter openings have never been found necessary. Resection of a rib he believes unnecessary, but in an extreme case a simple division of one is performed. The only satisfactory drainage is a simple one, three or four inches long, with thick walls. It should have attached to it a shield, two and a half inches square, and should be held in position by four tapes, two around the body and two over the opposite shoulder. The discharge is received in salembroth wool.

Subacute Mastitis and Cancer of the Breast.

In *L'Union Médicale*, March 21, 1893, Reclus gives a valuable clinical lecture on the differential diagnosis of subacute mastitis and carcinoma. Subacute mastitis has for its causes, usually, traumatism and lactation. The tumefaction of the breast, the indolence of its course, the thickening and induration of the skin, the retraction of the nipple, the absence of fluctuation—these signs all belong particularly to cancer, but they may likewise accompany a subacute mastitis. While lactation predisposes to mastitis it does not preclude cancer. While pain is in favor of mastitis still it is far from being decisive. The same is the case with glandular involvement; in mastitis it is apt to be more violent and rapid. The various symptoms taken individually are not at all reliable, and it is only by considering all the symptoms of the case that its nature can be correctly diagnosed. Oftentimes a few days or at most a few weeks will resolve all doubts. Care should be taken not to amputate a breast affected only with mastitis, nor, as occurred in one of our cases, open a fluctuating cancerous nodule for a simple abscess. One should, above all, not forget that true pathognomonic signs do not exist, but that it is necessary to examine all the symptoms and especially the mode of onset and development, and whether or not it is connected with lactation.

Symphyseotomy in Bladder Operations.

Wickhoff (*Wiener klinische Wochenschrift*, No. 11, 1893) states that in consequence of the frequently experienced difficulty in supra-pubic cystotomy for vesical tumor, of freely exposing the seat of the disease, several attempts have been made to render the affected portion of the bladder more accessible by temporary or partial resection of the interior part of the bony pelvis. This difficulty, he thinks, may be overcome by resorting to a less formidable procedure. The recent experience of symphyseotomy in obstetric practice, by which it has been proved that this operation is neither dangerous in itself, nor likely to cause any subsequent trouble in locomotion, has led the author to consider the advisability of practising it in supra-pubic cystotomy, with the object of rendering the interior of the bladder more accessible. He describes an operation that he has performed on the cadaver, in which, after complete section of the symphysis and separation of the pubic bone, the anterior surface of the bladder is so freely exposed that an incision can be made through the anterior wall of the viscus about four inches in length, and reaching to a point about one inch above the internal orifice of the urethra. Every part of the interior of the bladder was thus exposed, so that it was found possible, without difficulty, to resect the lower extremity of one of the ureters, to excise a piece of the lowest portion of the anterior wall of the bladder, and to seize with forceps and cut away the middle lobe of the prostate. Symphyseotomy, the author states, is especially indicated, not only in rare cases, in which a tumor is seated on the anterior wall of the bladder, but also in cases where the tumor springs from the lower portion of the posterior wall.

Transverse section of the anterior wall of the bladder is held to be objectionable, and section of the recti muscles is apt to result in a tendency to hernia.

The length of the wound in the bladder does not increase the dangers of a supra-pubic cystotomy, provided care be taken to close this by well-prepared and closely-applied sutures. With regard to the risks, both immediate and remote, of division of the symphysis, it is pointed out that the almost universal testimony of obstetricians is to the rapid and perfect consolidation of this structure after forcible separation.

A Simple Method of Resection of the Bowel.

Ricketts, in the *Journal of the American Medical Association*, August 26, 1893, describes a method of resecting the bowel, which he ascribes to Maunsell, of New Zealand. The procedure is as follows: The ends of the resected gut are joined by four long sutures; these ends are then passed up the bowel and brought out through a slit in its side. By traction on these ends the point of unison is drawn up into the proximal end and out of the lateral incision. The four guide sutures are next removed and the divided ends carefully united by a row of sutures. The knots of these sutures are thus all in the interior of the gut. On pulling the distal extremity downward the point of union is made to re-enter the gut, and the lateral opening is closed by a few sutures, thus completing the operation. Dr. Hartly is said to have employed the method with success in a case of intestinal carcinoma.

A New Instrument for the Control of Tonsillar Hemorrhage.

D. Hoyle Butts, in the *Medical Record* of July 1, 1893, describes an instrument for making pressure on the tonsils. It consists of two oval metal pads on handles. The instrument is introduced while the tongue is held down with a tongue-depressor. When in place the handles are separated and the pads thereby made to press on the tonsils and so control the bleeding. A screw in the handle serves to keep the blades separated to the proper extent. The author's experiences convinces him that the instrument can be borne in any throat, provided the operator is possessed of a moderate degree of skill and manual dexterity. A table of forty-six cases of tonsillar hemorrhage is appended to the article. It shows that only four of them were under fifteen years of age, and five others are mentioned as being "young," presubly young adults.

Advancement of a Portion of the Superior Maxillary Bone in Cases of Hare-lip.

Wyeth, in the *Medical Record*, June 24, 1893, describes his method of operating in cases of hare-lip having an anterior cleft of the hard palate. The object of the operation is to correct the flattening of the wing of the nose upon the side in which the bony deficiency existed. It is desired to make a bony support beneath the nostril of the affected side. The procedure is as follows: Two holes are bored through the bone on the sides of the cleft for the insertion of silver wire. A piece of bone is then loosened from the alveolus on the outer side of the cleft, embracing two teeth. This loosening is effected by dividing the alveolus, between the second and third teeth, by means of a bone forceps; instead of prying the piece over by means of a lever, it is pulled over by inserting a strong cord in the line of division made by the forceps. The piece of bone thus loosened, is pushed over in contact with the opposite side of the cleft, and firmly wired into place by the wire suture already in place. At least eight weeks should be allowed to intervene before the correction of the deformity of the soft parts. Twelve illustrations, showing the method of operating and results obtained, are embraced in the article, and the author states that the results he has obtained are more satisfactory than by any other operation with which he is acquainted. It is suitable in those cases in which there is projection of the inter-maxillary process, as it can be readily forced back into line with the short side of the alveolus. He prefers Nelaton's method of operating on the lip itself.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Suppositories of Ichthyol in Prostatitis.

Frendenberg (*Centralbl. f. klin. Med.*, June 1, 1893) has employed ichthyol suppositories in the treatment of fifty cases of prostatitis; the treatment was successful in all but two cases. It is indicated in both the acute and chronic forms. Each suppository contains from fifty to seventy-five centigrammes of ichthyol, and two or three are employed daily. If symptoms of rectal irritation appear, the amount of ichthyol is diminished.

Death from the Use of Pental.

Lick (*Deut. Med. Woch. and Rev. Gén. de Clin. et de Thérap.*, September, 1893), reports two fatal cases of poisoning by pental.

A young girl, whose necrosed finger it was necessary to amputate, inhaled ten grammes of pental from a sponge inhaler. During the anesthesia dyspnea, cyanosis and cardiac failure suddenly developed. Artificial respiration and tracheotomy were of no avail, so that death soon followed.

The second case was a girl, aged 18, anesthetized by pental for the injection of iodoform into the hip. She had been previously anesthetized by chloroform and bromide of ethyl. On removing the inhaler ten minutes after the inhalation had began, dyspnea, spasm of the masseters, sterterous breathing and cyanosis developed. Injections of ether, artificial respiration, injections of salt water and tracheotomy were futile; the patient perished.

In these cases the accident could not be attributed to asphyxia, but directly to the toxic properties of the pental.

Salicylate of Sodium in Menière's Disease.

Gay (*British Med. Journal*, September 9, 1893) reports the successful use of this remedy in Menière's disease. The patient, a lady, aged 65, had a weak, probably fatty, heart and enlarged liver, having a nodule near the edge that had existed several years, but showed no signs of increase. There were no evidences of gout nor history of alcoholism. The paroxysms of aural vertigo began in April, 1890; for these gelsemium was first employed with slight benefit. The attacks were as frequent as eleven or twelve a day, were followed by sickness, and were accompanied by deafness in one ear. The salicylate of soda was administered in doses of three grains three times a day. The effect was marked, at once reducing the frequency of the attacks. The latter continued, but gradually became less frequent and less severe.

In May, 1891, she reported herself as much better, only having an attack once a month. In November, 1891, she considered herself cured, having had no attacks for some time, and since then she has remained free from any symptoms of the disease beyond the deafness in one ear. During the last six months the remedy has been suspended for considerable intervals.

The External Treatment of Rheumatism by Inunctions of Salicylic Acid.

The external application of an ointment of salicylic acid in rheumatism has been employed for a number of years by Bourget, of Lausanne (*Revue Générale de Clinique et de Thérapeutique*). He prescribes the acid as follows:

℞. Salicylic acid . . . . . }
Lanoline . . . . . } āā 5 grammes.
Turpentine . . . . . }
Lard . . . . . 40 grammes.

Apply to the joints twice daily.

The acid is rapidly absorbed, and can be detected in the urine half an hour after the application. According to Bourget the pain speedily subsides, the temperature falls and resolution is effected in two or three days. The accidents following the internal administration of the drug have not been noted.

Pichi in Diseases of the Genito-urinary Tract.

Friedlaender (*Therap. Monatshefte*, July 18, 1893) speaks very favorably of the action of pichi in cystitis, prostatitis, acute gonorrhea, vesical neuroses and epididymitis. He administers the fluid extract in the dose of a teaspoonful thrice daily. Gastric disturbance, cutaneous eruptions and pain over the loins were not noticed after the administration of the drug, as is often the case after the use of the balsam of copaiba, or oil of sandal wood. The following six cases are recorded: (1) A man, aged 52 years, with nervous irritability of the bladder lasting two weeks. The symptoms disappeared six days after the administration of pichi. (2) A man, aged 21 years, with edema of the prepuce, acute gonorrhea and acute cystitis. In five days the acute symptoms—frequent micturition, dysuria and swelling—had almost completely disappeared. (3) A man, aged 58 years, with prostatic hypertrophy and chronic cystitis. In three days the urine became clear and of acid reaction and the obstruction was lessened. (4) A man, aged 23 years, with pain in the sacral region from chronic prostatitis. In eight days the pain had entirely disappeared. (5) A man, aged 21 years, with acute gonorrhea. In four days the discharge had decidedly lessened and the pain and swelling almost entirely disappeared. (6) A man, aged 32 years, with orchitis, epididymitis and subacute gonorrhea. He was ordered a suspensory and fluid extract of pichi. In a week the pain over the sacrum was lessened, the epididymis was reduced one-half and was almost painless, and the appetite and general health were greatly improved. In conclusion the writer believes that pichi is a valuable addition to the therapeutics of urinary diseases, and from its lack of pernicious qualities is superior to balsam of copaiba, oil of sandal wood and turpentine.

Papain.

Sittmann (*Münchener medicinische Wochenschrift*, xxix, 1893) has made numerous observations with papain, as obtained from the fruit of papaya carica growing in the tropics. The substance is a yellowish powder, having an aromatic taste, somewhat resembling that of a meat extract, and is a remarkable solvent of albumen. The author found that two-thirds of a grain sufficed to change 150 grains of coagulated white of egg mixed with hot water into an opalescent milky fluid in the course of two hours, no free albumen remaining. The action is the same in an alkaline or faintly acid medium. As might be expected, it was found to assist the gastric juice when deficient, facilitate the digestion of albumen, and

allow of its earlier passage into the duodenum, thus relieving the stomach. It was used in doses of four to eight grains, made into a thin paste, and taken immediately after every meal, which was made to contain a large proportion of albuminous matter. Two to three doses caused cessation of pain in acute gastritis, and after a further period of twenty-four hours the appetite returned, a cure being effected in two to three days. In chronic cases treatment had to be continued sometimes as long as fourteen days, and in three of these cases, where undoubtedly au ulcer had at some period existed, recovery was very rapid, one patient, for instance, being again able to take meat without subsequent pain. Two cases of carcinoma pylori were also distinctly relieved. Striking results were obtained in three severe old-standing cases of dilatation, the treatment with papain being supplemented by electricity and massage applied to the epigastrium and abdominal wall. In one of these patients there was a gradual retrogression of the dyspeptic symptoms, and he is now able to eat meat three times a day. The third patient was in the habit of washing out his stomach nearly every night, which he now no longer finds necessary; externally a diminution in the size of the stomach also became noticeable. There was only transient success in gastric neuroses, but the author recommends the experimental application of the method with as little water as possible to diphtheritic membranes.

The Effect of Calcium Chloride on the Blood.

Wright (*British Medical Journal*, July 29, 1893) has conducted a series of clinical experiments in order to ascertain the effects of calcium chloride on the blood. He first experiment on the extravascular blood of a patient with hemophilia, which differed from the normal blood in three respects: (*a*) In containing a somewhat reduced number of white blood corpuscles; (*b*) in containing a diminished proportion of polynuclear leucocytes (54 per cent. of total leucocytes instead of about 75 per cent.); (*c*) in possessing an apparently altogether subnormal degree of coagulability (coagulating time nine to ten minutes, instead of as in normal blood, from two and one-half to five, or rarely six, minutes). The number of red corpuscles ranged from 4,280,000 to 5,200,000. With a view of increasing the coagulability of the blood the patient was put upon daily one-gramme doses of nuclein, which according to Horbaczewski's observations has the property of inducing leucocytosis. After three days it was found that while the leucocytes were considerably increased, the coagulability of the blood remained the same, and as the writer had found by previous research that calcium chloride when added to extravascular blood decidedly lessened the time required for coagulation, he was led to prescribe it internally to this hemophilia patient in doses of one gramme three times a day. The results were as follows: The administration of lime-salt was immediately followed by a reduction of coagulation time to within normal limits. This normal degree of coagulability was also maintained on the next day. On the fourth day the coagulability was reduced to an extraordinary extent, and the writer attributes this reduction to an excess of calcium chloride, since previous experiments with large doses gave similar results. In conclusion, he believes that the facts developed are sufficient to raise a strong presumption that calcium chloride will prove of utility in producing an increased coagulability of the blood such as is desired in the treatment of internal hemorrhage, aneurism and hemophilia. He has seen arrest of hemorrhage accompanied with an increase of blood coagulability in a case of perpetually recurring epistaxis, and in a severe case of hemoptysis. Similar successful results have been put on record by Mayo Robson.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D.,

FRANK W. TALLEY, M.D.

Traumatic Detachment of the Placenta; Fetus Born Alive.

Odebrecht (*Centralblatt für Gynäkologie*, No. 30, 1893) reports a case in which serious damage to the placenta did not prove fatal to the child. A VIII-para, believing herself to be nine weeks from term, fell from a ladder, quite a distance to the floor below, striking her abdomen. Pregnancy continued unaffected till five weeks later, when a quantity of pale-red fluid escaped from the vagina. Pains of labor set in and were accompanied with the discharge of more blood-stained water. The membranes presented, and at the end of four days a live child was born without aid. The placenta followed half an hour later after the application of gentle pressure. Odebrecht describes the placenta, which he exhibited before the Obstetrical Society of Berlin, as follows: Two-fifths of its substance showed signs of prolonged compression, evidently from effusion of blood between the placenta and the uterus. That the patient was able to discharge her household duties for a month after the injury, which detached part of placenta, Odebrecht regards as remarkable. Still more interesting is the fact that the child lived so long when so much of the placenta was disabled, and was born alive after all.

Obliquity of the Uterus in Vertex Presentation.

Vallois (*Archives de Tocologie et de Gynécologie*, June, 1893), does not attach serious clinical importance to lateral deviations of the uterine axis, at least not in vertex presentations. He does not believe that lateral inclination is so common as is usually taught, and the proportions of the left deviations to the right is far higher than text-books usually indicate. The frequency of right obliquity can neither be explained by the shape of an individnal uterus nor by decubitus on the right side. The obliquity may alter completely without any change in the fetal position or in the decubitus of the mother. On the other hand, change of fetal position does not cause obliquity, which, moreover, cannot be attributed to uterine contractions. During labor the obliquity usually persists or increases. Vallois, however, notes a few cases where it has been rectified or even changed. In the early days of childhood, the uterus either remains oblique or falls to the median line. In cases under Vallois' personal observation, even the most pronounced lateral deviations did not cause any difficulty during labor, which they hardly, if at all, retarded. Attempts to correct the obliquity are useless, and often fail. Most assuredly, right obliquity of the uterus does not explain why the fetal head presents most frequently in the left occipito-anterior position.

Hemophilia and Parturition.

Wehle (*Centralblatt für Gynäkologie*, No. 29, 1893) discussed hemophilia in connection with parturition before the Dresden Gynecological Society at their May meeting. A case occurred under his own observation, the notes of which are as follows: The patient, a primipara, aged 33 years, developed rigors after having been ten hours in labor. The membranes had ruptured one hour previously; the fetus was presenting in left occipito-anterior position at the outlet. Flooding had set in. Wehle administered morphia and waited one hour, when he delivered the woman by a single traction with the forceps. The perineum and clitoris were slightly wounded and bled freely, as did several abrasions. The wounds were sutured, and the placenta delivered by expression after severe flooding. There were noticeable three defects upon its surface. The uterus was douched with hot water, and while this was being done the three missing pieces of placenta were removed. After the administration of ergot the uterus contracted, and the flooding ceased for a while, but hemorrhage began from the small abrasions and deeper sutures had to be introduced. Then the flooding set in again, and the uterus was plugged with iodoform gauze. A laundress' iron, placed on the abdomen where there was a gap between the recti, served well to ensure counter-pressure. The vagina required firm plugging, as the sutured wounds and the tracks of the sutures bled freely. The patient was in a state of collapse, but rallied in two hours after taking stimulants. On the third day the vaginal tampon was removed, and on the fourth day the uterine plug. For six weeks bright, ned blood occasionally trickled away, and five weeks later she was still very anemic and weak. In the child the stump of the cord bled though twice ligated. Wehle found that the patient's father had been subject to epistaxis, and died at the age of 42 of cerebral hemorrhage. One of his brothers was also troubled with epistaxis. One of the patient's sisters had flooding for a whole day when 18, severe flooding after the birth of her third child, and later suffered from epistaxis. One brother, also subject to nose-bleed, was seized when 17 with pains in the joints, and died of extensive subcutaneous hemorrhages. The patient herself, when 2 years old, bled freely from the genitals after a fall. When 12, she bled from the alveolus for a day after extraction of a tooth, and she had suffered bleeding from the gums during her pregnancy. There was no history of syphilis or nephritis; no atony of the uterus, nor laceration of the cervix.

The discussion turned upon the diagnosis of hemophilia from syphilis. Mänuel saw a case of fatal epistaxis in an infant aged 3 days, notwithstanding careful plugging. The father had suffered from a hard sore. Meinert stated that in a case where the stump of the cord bled for four days the father was also syphilitic. Marschner recorded three labors where there was great flooding during the third stage without any anatomical explanation. Leopold attributed flooding in Marschner's case to atheroma of the walls of the vessels in the uterine mucous membrane. Where there was no hereditary history the obstetrician should not be too ready to attribute bleeding to hemophilia. Mothers with syphilis often flooded in the third stage, and syphilitic children were subject to bleeding.

Syphilis and Pregnancy.

Fournier (*Canada Medical Record*, August, 1893) believes that two of the most important factors in the diagnosis of hereditary syphilis in a family are great frequency of abortion and high infantile mortality. Abortion is least frequent when the father alone is syphilitic, more frequent when the mother alone is syphilitic, and most constant when both parents are affected. In the latter cases as many as nineteen abortions have been known to occur. Fournier attended a family

in which the first three children were all born at term and all robust. Then the father contracted syphilis, and his wife become infected; she aborted three times in succession.

Fournier found that at the Lourcine Hospital 145 out of 167 of the children born of syphilitic mothers died in the institution. Collecting trustworthy statistics of 441 cases reported elsewhere, 100 children whose mothers were syphilitic survived infancy, while 341 died. It is noteworthy that out of the 341 that died, 335 perished within their first year; only six died later. Out of nine children in a syphilitic family, only two are likely to survive their first year.

Unconscious Delivery.

Le Blond (*Journal de Médicin de Paris*, July 30, 1893) related at a meeting of the Medico-Legal Society of Paris, in July, the following case: A woman, aged 27, illegitimately pregnant, who had been deserted by her lover, was seized with slight colicky pains, but continued to work. During the following night she was attacked with still more severe pain. Thinking that defecation would relieve her pains she sat upon her chamber utensil, and, upon straining, gave birth to a live child. She was greatly alarmed, but cut the cord with scissors, wrapped the infant in a cloth, and, proceeding down stairs, communicated to the people in the house what had happened. Violent flooding occurred; the cord had not been tied. Le Blond saw the case early the next morning, found the placenta still in the vagina, and extracted it. The mother and child did well. Had the child died the mother would have been very strongly suspected of murder, especially if she had attempted to defecate in a public privy, in which case the child would have been almost inevitably killed.

Soothing Syrup without Opium.

Canada Medical Record, August, 1893.

℞. Olei anisi . . . . . ℳxxv.
Alcoholis . . . . . ℥ij.
Ext. valerianæ fld . . . . . ℥j.
Olei menthæ piperitæ . . . . . ℳxv.
Tincturæ camphoræ . . . . . ℥ij.
Ext. glycyrrhizæ fld . . . . . ℥j.

M. Sig.—Shake the bottle. Dose, one-fourth or one-half teaspoonful in water. Repeat as needed.

GYNECOLOGY

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D., AND CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D.

Hemorrhage from the Uterus.

Thomas Savage (*The British Gynæcological Journal*, May, 1893,) divides the cases of uterine bleeding into those which are dependent upon (1) causes directly associated with the uterus itself; and (2) those in which the hemorrhage

is associated with some condition outside the uterus. Under the first division may be named those chronic inflammatory conditions, metritis and endometritis, with fungoid granulations in the endometrium. The treatment of such conditions consists in curettement, application of the positive pole of the battery, eschirotics of a mild nature, as carbolic acid, or of a stronger, such as fuming nitric acid. The removal of the uterine appendages is recommended in certain cases of menorrhagia occurring about the period of the menopause, in women who cannot command the rest and comfort of persons in better circumstances. This condition is frequently dependent upon a small myoma in the uterine wall, or to a general myomatous change in the uterus, and in such cases the menopause is delayed till about the fiftieth year or later. Incomplete abortions, cancer, polypi, fibroid tumors and flexions are mentioned as other causes of hemorrhage. With reference to treatment of these conditions, the uterus must be dilated, curetted, and its cavity cleansed, in cases of incomplete abortion; the actual or thermo-cautery, followed by perchloride of iron, must be applied to the seat of cancer; polypi must be removed, and submucous fibroids may be made to bleed less by use of ergot, hamamelis, hydrastis, digitalis, bromide of potassium internally, and by local applications of iron, nitric acid and electricity, positive pole. A well-adjusted pessary will be appropriate for bleeding due to flexions.

(2) Causes not directly associated with the uterus. Cystoma or dermoid cysts are frequently associated with bleeding. Ectopic gestation and chronic inflammatory disease of the appendages, salpingitis, hydro- or pyosalpinx or a hematosalpinx. In the author's experience, persistent metrorrhagia has frequently been associated with pyosalpinx.

In obesity, constipation, disease of the heart or liver, pelvic stenosis may be a consequence and give rise to a bloody discharge from the uterus. In such cases much attention must be paid to the *primæ viæ*.

The Relative Merits of Vaginal Hysterectomy and Supra-vaginal Amputation of the Cervix for Cancer of the Uterus.

Bowreman Jessett, in his Inaugural Address as President of the British Gynecological Society, February, 1893, discussed the above subject. The work of a number of surgeons on the Continent, Great Britain and in the United States, was analyzed. The immediate mortality of vaginal hysterectomy (for cancer) is shown by the following statistics collected by Dr. Byrne:

	Operators.	Operations.	Deaths.	Per Cent.
Continental	14	944	137	14.5
British	8	74	15	15.
United States	16	255	34	13.

The immediate mortality in this operation is thus shown to be about 15 per cent., while in 419 cases of high amputation of the cervix for cancer, Byrne and Lewers had no deaths, and the author had but one death in twenty-four cases, which makes the immediate risks of the latter operation practically *nil*.

The dangers which surround the operation of vaginal hysterectomy are said to exceed those which attend the high amputation of the cervix. Under the former are mentioned ileus, from the glueing of the intestines to the margin of the vaginal wound; injury to the ureters, from including them in the ligature or in the bite of the forceps to control hemorrhage, or by dividing them when the disease extends laterally into the broad ligaments; vesico-vaginal or recto-vaginal fistula; peritonitis; from excessive traction and tearing of the part; sepsis and hemorrhage.

In the operation of high amputation there can be no danger of intestinal obstruction, injury to the ureters, nor of the formation of fistulæ, and the dangers of hemorrhage are readily controlled by ligating the uterine arteries, or in secondary hemorrhage by packing the vagina. The mortality rate of 15 per cent. must be modified by the results obtained by different methods of operating for total extirpation of the uterus. Thus, in a large number of cases the mortality was as low as 6.6 per cent., when the ligature alone was used; with the ligature and clamp it was 11.5 per cent., and when the clamp alone was the method employed for controlling the blood-vessels, the death rate was 16.6 per cent. Probably the location and extent of the disease was the real factor in this variation in the mortality rate, rather than the different methods employed to remove the organ.

The class of cases of cancer which may be dealt with by either operation, is that class which has the disease confined to the external os, or to the cervical portion of the uterus. A slight involvement of the vaginal walls would not contra-indicate either operation. In the amputation of the cervix, the use of the galvano-cautery is advocated as being less likely than the knife to be followed by hemorrhage, and also for the purpose of destroying diseased tissue about the danger line. Strict antisepsis is urged as a necessity in either operation, and the method practiced by Florian Krug is described. This surgeon gives the patient a preliminary curettage, followed for several days by vaginal douching. At the time of the secondary operation, the vagina is scrubbed with mollin, containing 10 per cent. of creolin.

He prefers the ligature for the stump, which is to be inverted toward the vagina, and the peritoneal wound carefully packed with iodoform gauze, which may remain *in situ* for a week.

The ultimate results of either operation for uterine cancer are difficult to determine; but from a study of a large number of cases, it is certain that relapses are frequent—about 70 per cent.—and often very rapid, but the symptoms may not be noticeable to the patient for a considerable time. Thirty per cent. of those who survive the operation seem to be completely cured.

The author concludes that the operation of extirpation of the entire uterus should be confined to those cases in which the cancer has invaded the body of the uterus, and that such an operation is contra-indicated when the disease is limited to the cervix by reason of the fact that high amputation of the cervix has secured better immediate results, has fewer complications, and preserves the roof of the vagina.

Vaginal Ligation of a Portion of the Broad Ligament for Uterine Tumors.

Franklin H. Martin (*The Journal*, September 2, 1893,) reports three additional cases of this operation, two having been reported early in the year. The operation consists in the ligation, per vaginam, of more or less of the broad ligament, with its vessels and nerves, the extent of the ligation depending upon the result sought, from a simple ligation of the base of the ligament, including the uterine artery and branches of both sides, without opening the peritoneum, to a complete ligation of the ligament of one side, including both uterine and ovarian arteries, with partial ligation of the opposite ligament, without opening the peritoneal cavity, if possible, but doing so, if necessary. In all of the cases operated upon there was immediate improvement in respect to the hemorrhages. In three of the cases there has been no return of hemorrhage during the ten months that have passed since operation, while in two cases the flow has diminished consider-

ably, but has increased over the amount present immediately after the operation. Pain has also diminished in all cases, and disappeared in three, and the size of the tumors has decreased in a marked degree in two cases. One case is particularly instructive as showing the merits of the operation and as suggesting a field for its application. Case IV, aged 36, with menorrhagia and metrorrhagia for five years. The abdomen was opened in December, 1892, with a view to removal of the tumor, but the operation could not be completed on account of the extensive adhesions (the tumor filled the pelvis and reached to umbilicus), nor could the appendages be removed. Subsequently the base of each broad ligament was ligatured, and the bleeding immediately ceased and did not return for two weeks. There was then a moderate flow, which resembled an ordinary menstruation, and this returned each month without pain, and the patient has been improving from the day of operation and is able to attend to her household duties in perfect comfort. The tumor has greatly decreased in size, so that at present the patient is not conscious of its presence.

Ovariotomy on Patients over Seventy Years of Age, by American Operators.

Mary Sherwood (*Medical and Surgical Reporter*, July 8, 1893) has collected statistics of one hundred ovariotomies performed upon aged patients, and of this number thirty-eight are placed to the credit of American surgeons. Thirty-three of these recovered, giving a mortality of 13.1, while the mortality, as based on the complete list of a hundred cases, was 12 per cent. It is interesting to note that this list of thirty-eight cases includes: (1) The earliest case found in the literature of the subject. (2) The oldest case on which the operation was successfully performed. (3) The greatest number of cases reported by a single operator. Only nine cases are recorded as simple and uncomplicated, while twenty-three cases were made difficult and more dangerous by the presence of adhesions, which were so numerous in two cases that the removal of the uterus was made necessary.

There is no evidence that either ovary is the more frequent seat of disease. Eighteen patients recovered from the operation, and are reported as living at the beginning of the present year. Nine patients were alive and well one to three years after, and seven cases are still living seven to ten years after operation. In only two cases was the report made less than a year after operation. Evidently, age seems to have but slight bearing upon the results of ovariotomy.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Discovery of Protozoa in Mycosis Tungoides.

Wernicke (*Centralblatt für Bakt. u. Parasitunk.*, 1892, Band xii, No. 24) discovers in this disease coccidia, which resemble those found in the cells of carcinoma and which he suspects of being the cause of the disease. Investigation of fragments of tissue taken from the skin of affected patients showed that the

tumors were all in the corium, and that none extended into the subcutaneous connective tissue. The microscopical formation of the tumors is like that of the granulamata. In these round cell nodes, sometimes the softened centre whose nuclei are no longer tangible one or more giant cells with as many as thirty nuclei are found. In the last Wernicke found the enclosures thought to be coccidia in the form of round bodies with yellowish color, on which an outer hyaline capsule and an inner granular mass were distinguishable, the latter without a nucleus or central body with nuclear coloring properties. These bodies measured 3-30 μ, and sometimes as many as ten were found in one giant cell. The parasites were not found in the blood. He obtained most successful coloring results with vesuvin glycerine, but found that other aniline colors were taken up by the bodies.

Two New Varieties of Spirilli Found in Water.

Bujwid (*Centralb. f. Bakt. u. Parasitunk.*, 1893, Band xiii, No. 4) found two new colonies, suspiciously like cholera, in water from a conduit. These grow in almost the same manner as cholera at a low temperature. Higher temperatures, however, produced at once a distinct difference, as they grew broader and more superficially, not sinking so deeply in or clouding the liquid gelatin so much as cholera. The odor of the plates does not resemble indol, but rather methyl-merkaptan. A myoderma is produced upon bouillon cultures. Indol reaction is not present. A short time after the discovery of this spirillum an assistant of Bujwid's found in water from a well at Dublin another still more closely resembling cholera. Bujwid has named these forms boullus choleroides *a* and *b*.

Occurrence of an Organism Resembling the Plasmodium Malariæ in a Case of Malignant Disease of the Bladder.

T. Lauder Brunton (*Lancet*, August 12, 1893) describes serpent-like bodies observed in some cells in the urine of a patient with malignant disease of the bladder as follows: From one large cell a prolongation exactly like a small serpent issued. This visibly grew while I was examining it, and shot its head out hither and thither from the cell exactly like a snake waving the upper part of its body backward and forward from its resting coils. For awhile this snake, if I may so call it, applied its head to another cell as if it were sucking it, then moved its head away, and the whole organism shot rapidly across the field of the microscope. I could not see how this motion was affected; it looked to me like ciliary motion, for the snake kept quiet all the time. The partial resemblance between this body and the plasmodium of malaria made the observer place this on record as possibly having some relation to the so-called protozoa of cancer.

The Nature of Cancer and General Classification of Cancerous Diseases.

Herbert Snow (*Lancet*, July 29, 1893). Why cancer can hardly be due to a micro-organism:

(1) Clinical evidence negatives any theoretical analogy between the coccidial disease and cancer. The former is a lesion of the bile ducts infecting young rabbits, which may spontaneously recover; cancer attacks the elderly or old, very rarely the young, and no spontaneous cure ever happens.

(2) Very conspicuous differences are found between every form of disease hitherto associated with a micro-organism and cancer.

(3) The consideration which goes furthest to negative the hypothesis of cancer causation by an extraneous micro-organism is the fact that the secondary metastases always involve a reproduction not only merely of the particular cells concerned, but of their original arrangement and functional characters.

MISCELLANEOUS.

THE OUT-DOOR VISITING DEPARTMENT OF THE HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

At a recent meeting of the Board of Managers of the University Hospital it was decided to establish an Out-door Visiting Department. The details have not been fully elaborated as yet, but it is hoped that the plan will be perfected and put in operation during the winter. The main features thus far decided upon are as follows:

I.—The Out-door Visiting Department of the University Hospital provides for the visiting of deserving poor patients at their homes, over a district bounded on the east by the west side of Broad Street, on the north and south, east of the Schuylkill River by Girard Avenue and Washington Avenue, west of the Schuylkill River, north by Girard Avenue to Fortieth Street, thence north; south and west by the city limits.

II.—For this purpose the above area shall be subdivided into districts as follows:

EAST OF THE SCHUYLKILL RIVER.

1. From the north side of Market Street to the south side of Spring Garden Street, and from the west side of Broad Street to the east side of Nineteenth Street.

2. From the north side of Market Street to the south side of Spring Garden Street, and from the west side of Nineteenth Street to the Schuylkill River.

3. From the north side of Spring Garden Street to the south side of Girard Avenue, and from the west side of Broad Street to the east side of Nineteenth Street.

4. From the north side of Spring Garden Street to the south side of Girard Avenue, and from the west side of Nineteenth Street to the Schuylkill River.

5. From the south side of Market Street to the north side of South Street, and from the west side of Broad Street to the east side of Nineteenth Street.

6. From the south side of South Street to the north side of Washington Avenue, and from the west side of Broad Street to the east side of Nineteenth Street.

7. From the south side of Market Street to the north side of South Street, and from the west side of Nineteenth Street to the Schuylkill River.

8. From the south side of South Street to the north side of Washington Avenue, and from the west side of Nineteenth Street to the Schuylkill River.

WEST OF THE SCHUYLKILL RIVER.

9. From the north side of Market Street to the south side of Spring Garden Street, and from the west side of the Schuylkill River to the east side of Fortieth Street.

10. From the north side of Spring Garden Street to the south side of Girard Avenue, and from the west side of the Schuylkill River to the east side of Fortieth Street.

11. From the north side of Market Street to the south side of Spring Garden Street, and from the west side of Fortieth Street to the western limit of West Philadelphia.

12. From the north side of Spring Garden Street to the south side of Girard Avenue, and from the west side of Fortieth Street to the western limit of West Philadelphia.

13. From the south side of Market Street southward to Schuylkill River, and from the west side of the Schuylkill River to the east side of Fortieth Street.

14. From the south side of Market Street and from the west side of Fortieth Street southward to Baltimore Avenue, to the western limit of West Philadelphia.

NORTHWESTERN DISTRICT.

15. From the north side of Girard Avenue, west of the Schuylkill River, to the northern and western limits of the city (Hestonville).

SOUTHWESTERN DISTRICT.

16. From the south side of Baltimore Avenue, at its beginning at Thirty-ninth Street, to the Schuylkill and Delaware Rivers, and to the city line (Darby).

III.—To each of the districts named there shall be appointed by the Managers of the hospital, on the recommendation of the medical staff, one physician (sixteen in all) whose duty it shall be to attend at their homes any deserving poor patients residing in his district, and too ill to attend at the various dispensaries of the hospital of the University. This number of physicians may be increased from time to time if the growth of the service demands it.

IV.—The district physicians shall take charge of a patient in their respective districts upon an order signed by the chief of the dispensary in whose department the case seemingly occurs, or by the senior resident physician of the hospital, or by the superintendent.

V.—Immediately after his first visit, or his second visit at the latest, the district physician shall report the name, sex and age of the patient, and the diagnosis, to the chief of the dispensary in whose department the case happens to fall, that it may be suitably recorded.

Whenever a patient may have recovered sufficiently to be able to attend personally at the hospital, and yet require further treatment, he shall be directed to report at the appropriate dispensary.

VI.—Before an order is issued suitable inquiries shall be made to determine whether the applicant is able to pay for medical attention. No order shall be issued for a person able to pay, and if, on the visit of the district physician, it is found that the patient is not in circumstances justifying unpaid medical attendance, the fact shall be reported to the authority issuing the order, and the name shall be stricken from the list.

TUMOR OF THE OPTIC THALAMUS. CORRECTION.

By an oversight, a misstatement of fact was made in Dr. Sinkler's article in the October issue of the University Medical Magazine. On page 25, seventeenth line, *and* should have been *but not;* the sentence should have read: When the basal ganglia were exposed, it was seen that, on the left side, the optic thalamus was as large as a hen's egg, the enlargement extending in all directions, *but not* involving the posterior part of the corpus striatum.

BOOK NOTICES.

Manual of Physical Diagnosis for the Use of Students and Physicians. By James Tyson, M.D. Philadelphia: Blakiston, Son & Co.

The advance sheets of this excellent manual have just been received. The clearness and conciseness with which the principles of physical diagnosis were set forth in the first edition of the work, soon won for it a permanent place among the text-books on this subject. The early call for a second edition has encouraged the author to go a step further and to add an appendix in which are included directions for detecting the more important bacilli associated with the infectious diseases, the various chemical examinations required in diagnosis of diseases of the stomach, and directions for making an autopsy. A knowledge of these subjects is regarded at present so important to the student and practitioner that their discussion in this work will necessarily enhance its value.

DISEASES OF THE SKIN. By CHARLES C. RANSOM, M.D., Assistant Dermatologist, Vanderbilt Clinic, New York. Philadelphia: Lea Brothers & Co.

This little book is one of a group of similar books known as "The Students' Quiz Series," and like all such books is intended to aid the student in passing his examination without doing very much legitimate work. Although we find it necessary to discourage the student; the innumerable compends that are to be had at the present time, we feel justified in saying that it is equal to any that have yet appeared. For its size the book is fairly well illustrated and the important points emphasized.

THE YEAR-BOOK OF TREATMENT FOR 1893. A Critical Review for Practitioners of Medicine and Surgery. Philadelphia: Lea Brothers & Co., 1893.

For nine years the Year-book of Treatment has been a welcome visitor to the library of the busy practitioner. In this time many new digests have appeared, but none, we believe, has supplanted this in the confidence of the profession. The names of the twenty-two contributors are so well known on both sides of the Atlantic that we are sure of finding, when we study the book, a critical review of the year's work in therapeutics. The abstracts are well translated, concise and carefully selected. Some improvement might be made in the index, since it contains omissions which tend to detract from the value of the work as a book of reference.

PROCEEDINGS OF THE PHILADELPHIA COUNTY MEDICAL SOCIETY. Vol. XIII. Session of 1892.

The high position held by the Philadelphia County Medical Society, not only by virtue of its share in the medical history of this country, but because of the standard of the work done by it in the past, assures a careful perusal of this annual publication of its transactions. There are several features of special interest in the present volume, not the least among which are the papers upon Asiatic cholera elicited by the recent threatened invasion of this country by that scourge. The valuable experience of Dr. Shakespeare, obtained in his mission to the stricken districts of Europe a few years since, renders him admirably adapted for the position of mentor in this subject, and his paper merits close attention and wide distribution. Equally valuable is the series of papers devoted to a consideration of the lessons derived from the late epidemic of influenza participated in by such men as Professors Henry, Curtin, Mills, Flick and Hare. While it is true that the inevitable has occurred, and that this book—as do all such volumes—contains much that is but a rehash of old information; still the remarkably large proportion of valuable contribution to medical science, places the transactions of the past year upon the foremost plane of medical progress, and ably sustains the well-earned reputation of the society.

ELEMENTARY PHYSIOLOGY FOR STUDENTS. By ALFRED T. SCHOFIELD, M.D., M.R.C.S.; Late House Physician to the London Hospital; Special Lecturer to National Health Society. Philadelphia: Lea Brothers & Co.

The author has presented a compact text-book of physiology for medical students, selecting as far as possible the definitely ascertained facts of the science and avoiding theory except where necessary to connect thereby isolated items of positive and essential knowledge. By the aid of a concise style this is accomplished in a volume of moderate size, priced so as to be within the command of all.

A rational grasp of its subject is facilitated by the clearness of the style, the intelligent use of heavy type for important headings in the text and brief marginal notes, which epitomize the paragraphs and guide reference thereto.

The work is exceptionally rich in illustrations, its 395 pages being embellished with no less than 227 beautiful engravings and two colored plates containing thirty figures.

A favorable reception for this work seems assured.

INTERNATIONAL CLINICS: A Quarterly of Clinical Lectures on Medicine, Neurology, Pediatrics, Surgery, Genito-Urinary Surgery, Gynecology, Ophthalmology, Laryngology, Otology and Dermatology, by Professors and Lecturers in the Leading Medical Colleges of the United States, Great Britain and Canada. Edited by JOHN M. KEATING, M.D., L.L.D., JUDSON DALAND, M.D., J. MITCHELL BRUCE, M.D., F.R.C.P., and DAVID W. FINLAY, M.D., F.R.C.P. Volume I. Third Series, 1893. Philadelphia: J. B. Lippincott Company, 1893.

This work is a collection of admirable papers dealing in a very practical way with affections the physician meets in his every-day experience. The fact that in each instance a clinical case furnishes the text for the discourse lends additional interest to the discussion. The contributors have been well selected, and each may be said to be an authority on the subject which he presents. While these lectures ought to prove useful to every physician who reads them, they ought to be especially helpful to advanced students by furnishing an excellent library of collateral reading. Three plates and many excellent cuts illustrate the work.

TO CONTRIBUTORS AND SUBSCRIBERS.

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UNIVERSITY OF PENNSYLVANIA PRESS,
1516 Chestnut Street, Philadelphia, Pa.

UNIVERSITY
MEDICAL MAGAZINE

DECEMBER, 1893.

THE ETIOLOGY OF FRACTURE OF THE LOWER END OF THE RADIUS.[1]

By Harrison Allen, M.D.,
Of Philadelphia.

I desire to call attention to one of the most common of the fractures of the long bones.

As illustrated by R. W. Smith,[2] the fracture is usually the result of a fall upon the palm, and is liable to happen whenever a person, in the act of falling forward, throws out before him his arms and hands in a state of extension, which he does, as it were, instinctively to save the head and face from injury.

Mr. W. H. Flower[3] states that the hands are generally thrown forward, the whole weight of the body being received on the palmar aspect.

Mr. Erichsen[4] believes that when a person falls on the palm of the hand, the shock is principally received on the ball of the thumb and on the radial side of the wrist. He follows this statement with another which is less explicit, namely, that the force of the shock impinges from without inward,[5] since the figure that accompanies the descrip-

[1] This paper is printed at this time with the object in view of soliciting observations from surgeons. I would be greatly pleased if the following facts could be carefully noted: (1) The positions of discolorations and bruises of the hand—whether on the little finger or thumb side; (2) the positions of discolorations and bruises of the fore-arm—whether on the ulnar side or flexor surface; (3) the parts of the sleeve that have been soiled or torn by being brought in contact with the ground—whether on the little finger side or across the front of the lower part of the sleeve.—H. A.

[2] A Treatise on Fractures in the Vicinity of Joints, etc., Dublin, 1847, p. 134.

[3] Holmes' Surgery, Vol. II, p. 552.

[4] The Science and Art of Surgery, 1873, p. 361.

[5] The position of the hand here evidently is that with the thumb directed outward, the thumb being on the outer side, as in the attitude of a soldier standing at attention, while the little finger is on the inner side.

tions[1] shows, as is always the case, the radius to be greatly deformed on the side which answers to the thumb.

Numerous other expressions could be cited in support of the assumption that the accident is the result of a fall upon the palm or the ball of the thumb. I have recently concluded that the terms of such a proposition are given in a manner too general to be satisfactory, and are in part erroneous.

I believe that when the arm is thrown in front of the body, as in the act of falling, the impress is received upon that part of the palm answering to the little finger, and not upon the palm as a whole, or upon the ball of the thumb. I venture upon this statement with some hesitation, since it is almost impossible to prove the assumption either by observation or the statements of patients, and analogy is not always a good guide. Nevertheless, in this case it may form the basis of an improved statement of facts.

The only authority that I can refer to in this connection is that of A. Gordon,[2] whose language is as follows: "An engineering student, while skating, fell sideways and fractured the right radius at about one-half inch from the lower end behind. He obstinately claimed[3] that the extremity, at the moment of the accident, was not much extended, and that the whole shock was received upon the inner (*i. e.*, little finger side) and upper part of the palm." Mr. Gordon does not draw valid conclusions from this, for in the experiments upon which he based his subsequent statements, he speaks of seizing the hand of the subject and bending it backward, by which means he succeeded in breaking the radius; but it is evident from the manner in which the palm of the hand had come to the ground in the instance given, it could not have been bent forcibly backward, but pushed toward the thumb side of the hand as well as backward. It is always necessary to remember that when the hand is prone the thumb side becomes "inner" and the little finger side "outer."

I have been led to believe that the extended hand of man comes to the ground as does the fore-foot of the quadruped. The foot of such a limb, when in advance of the body, is always extended, and, as it is prepared to approach the ground, is held in a position midway between pronation and supination. As it reaches the ground and is prepared to support the body the foot strikes along or near the outer (little finger) border. The entire foot does not receive the weight of the body until it is brought well beneath it. In a word, during the first stage of

[1] Ibid, p. 360.

[2] A Treatise on Fractures of the Lower End of the Radius, etc., London, 1875, p. 12.

[3] It is to be inferred that the patient had been subjected to a sharp examination, since his statement was held to be improbable.

support the line of impact is from the outer border to the centre of the foot. When a person falls forward (as Mr. Smith expresses it), the arm is instinctively thrown in front of the body. Many, if not all, instinctive actions are of ancestral origin, and it is difficult to believe that this inherited motion in the human subject is different in kind from that habitually employed by the quadruped.[1]

In a normal state of affairs, such as exists in the act of crawling, the force of the impact would gradually be distributed through the entire hand, and no injury would occur to any of its parts. But a lesion, resulting from a forcible and injurious impact of the hand upon the ground, is not followed by any of the later stages of evolution of the hand in supporting the body.

A number of the specimens of the fracture in the Mütter Museum of the College of Physicians of Philadelphia, which I have recently examined, clearly show that the several parts relate to the lines of forces acting as already indicated. It is not necessary to enter into a minute description of these specimens, for the anatomy of the fracture has been so frequently described that little or nothing can be added to the subject.

What takes place then in the fracture at the lower end of the radius as a result of falling with an extended fore-arm thrown in front of the body? The action can be formulated thus: As a result of violent contact of the hypothenar portion of the palm against the ground, the hand is first pressed upward (not backward)—that is to say in a direction as though the forces were exerted on the hypothenar side of the palm and were to traverse the palm to the thenar side; and the direction is upward since the hand is midway between pronation and supination. Secondly, the force of the impact is measurably transferred to the centre of the palm obliquely inward and backward. The act of a violent and unexpected fall throws the entire weight of the body upon the unrelieved hand, with the result of wrenching the hand inward and upward from the hypothenar side and impacting the radius against the carpus. In this fashion are created all the several lines of lesion.

It is only necessary to remember that fractures occur at the lower end of the radius in a variety of ways, Since the specimens in our museums are rarely accompanied with clinical histories, it becomes a difficult matter to separate the classes of injury. All the specimens which I have examined, however, closely resemble one another, and appear to have been produced by a simple fall forward to the ground.

[1] See in this connection a report of a lecture by myself, entitled "On the mechanism of the Mammalian Limb." The lecture was delivered under the auspices of the Academy of Natural Sciences of Philadelphia, February 19, 1892, and was printed in *Boston Medical and Surgical Journal*, March 7, 1892.

L. S. Pilcher[1] has made a careful study of the fractures of the inferior extremity of the radius, and defines four varieties of accidents which can create them:

First, falls upon the palm of the hand; common; second, simple over-extension of the hand; unfrequent; third, falls upon the back of the hand; rare; fourth, simple over-flexion of the hand; very rare.

The above note comes within the limit of the first of these groupings. It is held to be a gain in describing this common fracture to substitute the phrase "fall upon the hypothenar portion of the hand," for the phrase "fall upon the palm of the hand and the ball of the thumb."

PACCHYMENINGITIS AND MYELITIS FROM POTT'S DISEASE, AND SEPTIC NEURITIS OF THE CAUDA EQUINA FROM A BED-SORE OVER THE SACRUM.[2]

By James Hendrie Lloyd, A.M., M.D.,

Physician to the Philadelphia Hospital, to the Methodist Episcopal Hospital, to St. Clement's Hospital for Epileptics and to the Home for Crippled Children.

To the orthopedic surgeon, not less than to the neuro-pathologist, the disease-processes that involve secondarily the vital contents of the bony canal of the spine, are of supreme importance. No apology, therefore, can be necessary for a presentation of the subject from the pathologist's standpoint. It goes without saying that the surgeon who limits his interests or his knowledge to the affections and deformities of the spine itself, ignores that element of his cases which is most vital to his patients and most important to his own success. In saying this, however, I do not intend to infer that such is the fault or even tendency of the orthopedist of the present day. Far from it, if I mistake not, he displays a very active interest in determining and maintaining the integrity of the cord. It is this fact that leads me to believe that a demonstration under the microscope of the actual conditions that do, in many of his cases, confront him and yet elude him, baffling often his best directed efforts, will be not unacceptable.

If I were to attempt to establish or defend any particular thesis on

[1] Proc. of the Med. Soc. of Kings County, Brooklyn, N. Y., 1880, p. 159.

[2] Read at the first meeting of the Orthopedic Section of the College of Physicians of Philadelphia, October 20, 1893.

this subject this evening, it would be probably that the essential disease-process that involves the cord and its membranes in caries of the spine is an active infectious one, causing first a pacchymeningitis, and later a meningo-myelitis, and that bone-pressure, as an active cause in the impairment and destruction of the cord, is of strictly secondary importance, and in the great majority of the cases of no importance whatever. This assertion I base first upon my own observations in numerous autopsies; and, second, upon deductions drawn from a general consideration of the subject. To the results of two of these autopsies I shall point later, as they practically constitute this paper; but to a few of these general considerations I shall refer briefly first.

The mere fact that an active infectious process, capable of destroying bone-tissue, is in the immediate neighborhood of the cord and its membranes, often, indeed, in direct contact with them, should suggest the extreme likelihood that the tissues of the cord and its membranes also may become involved. This is so especially when the fact is considered that nervous tissue and its envelopes are very susceptible, especially in the young, to the invasion of the tubercular process. This likelihood is suggested also by the ease with which other tissues, remote from the primary focus in the body of a vertebra, may become affected. Thus it is not uncommon, in fact it is the rule, in fatal cases in children for us to find the meninges at the base of the brain, the lungs, the mesenteric glands, and even the spleen and the kidneys infected with tubercle. It is this fact of a general infection, or the risk of a general infection, that must never be lost sight of in either a pathological or a surgical study of this subject, and that confronts any theory of amerely mechanical cause, of the nerve symptoms, such as pressure.

The practical importance to the surgeon of a right comprehension of this subject cannot be over-estimated. If he considers duly it in all his cases, he will be saved doubtless from some mortifying failures to which he will be exposed inevitably if he relies upon purely mechanical devices. Laminectomy will not save a cord bound down along its whole ventral aspect by a diffuse pacchymeningitis. Such an operation in advanced cases goes neither to the original focus of disease nor to even its worst secondary effects. If a practical deduction may be drawn from my studies of this subject, it is that radical measures to be successful must be instituted early; but that unfortunately radical measures, as we understand and as our orthopedists practice them at present, do not go to the root of the disease, which is in the bodies of the vertebra. A not uncommon cause of impairment of the function of the cord is pressure, not only by thickened membranes, but also by tubercular masses or nodules in front of or at one side of it. If a pathological study does nothing more than strengthen the conviction

that the most skillful adjustment of brace and jacket, and the promptest drainage of abscess cavities are but temporary expedients in too many cases, it may, perhaps, serve a purpose by stimulating the surgeon to renewed efforts to reach or to counteract the effects of that primary focus or of those tubercular masses. Until that is done we cannot but feel anxious for the integrity not only of the tissue of the spinal cord, but of all other vital tissues of the body.

It must be evident to all observers, that the degree of involvement of the cord bears no exact relation to the degree of involvement of the spine. In other words, that very early cases sometimes show the so-called pressure symptoms, and that, on the other hand, very late cases, with great deformity, show no cord symptoms whatever. This difference must be due to two facts: First, the fact that the cord and its membranes, for various reasons, are not attacked similarly, and at the same time in all cases. This is probably because of variations in the exact location of the carious process, in the bones and in its extent and in the direction of its course. It is due, secondly, in some cases at least, to the fact that free drainage is established through abscesses opening in the iliac or psoas region, whereby, although the canal and even the membranes may be opened, the deleterious products of infection are drained away, and, therefore, the cord is preserved. This fact was demonstrated in a striking manner by the following case:

V. N., aged 9 years, died recently in the Home for Crippled Children, where she had been under the care of Dr. Willard and the writer for several years. She had caries from the fifth to the tenth dorsal vertebræ, and large discharging sinus over the sacrum and above Poupart's ligament. The patient had the usual symptoms seen in such cases, *i.e.*, a septic condition with hectic temperature, albuminous urine, enlarged liver, and tubercular deposits in the lungs. She died of tubercular meningitis at the base of the brain. Here were all the signs of extensive infection. Moreover, the kyphosis was very great, the angular curvature being prominent and acute. In spite of all these favorable conditions, both for pressure and for infectious meningitis of the cord, this patient had no marked cord symptoms whatever. The explanation of this was found post-mortem.

At the autopsy it was found that the large discharging sinus, opening over the sacrum, was connected, as usual, with the point of suppuration in the vertebræ. There was also a discharging sinus in the right groin just above Poupart's ligament. It extended up the sheath of the iliacus muscle to the point of disease in the dorsal vertebræ. The spinal canal, when opened, revealed the cord bent to an angle greater than a right angle.[1] Right at the knuckle, and a

[1] This cord was exhibited at a meeting of the Philadelphia Neurological Society.

little to each side of it, the membranes were thickened, the result of a meningitis, and over the cord was spread the characteristic greenish-yellow gelatinous deposit, found so often in tubercular meningitis. Just at the angle an opening led into the carious region of the vertebræ, and so through the discharging sinus. At this point where the canal opened into the abscess cavity, the dura mater was perforated and partially adherent to the jagged edges of the cavity. The free drainage thus secured probably explains the fact that the cord escaped as it did. Certainly there was every opportunity for pressure on this acutely bent cord, and yet it escaped. The autopsy revealed also the same tubercular exudation over the base of the brain; also tubercular deposits in the lungs and mesenteric glands, and a large amyloid kidney.

The case from which the specimens were taken, which I present here this evening, was briefly as follows:

W. V., aged about 40 years, came under my care when I entered upon my service at the Philadelphia Hospital in February last. He was bed-ridden, being completely paraplegic. He gave a very unsatisfactory history of himself, but denied trauma or syphilis.

He had complete paraplegia, having no voluntary movement below the hips. The legs were contractured. The knee-jerks were much exaggerated, and ankle clonus, more marked on the right side, was present. There was extensive anesthesia below a line corresponding to the course of the sixth dorsal nerves. Paralysis of the bladder and rectum was established. The patient had extensive bed-sores on both hips and beneath the sacrum. As a very unusual symptom, he had constant pain in his legs and feet, as well as in the back and waist. This was regarded as a sign of meningeal irritation, but its true seat was not suspected at the time. It was much more severe than any pain which I have ever seen as a result of meningeal irritation, due to spinal caries. It confused the diagnosis, and made the case present a marked resemblance to spinal tumor, in which severe pain is often observed. This resemblance was the greater because the usual hump or deformity of spinal caries was absent. Instead of this hump the patient had a slight depression in the spine corresponding to the position of the seventh and eighth dorsal vertebra, the spines of the vertebra being either depressed or deformed. At that point there was much sensitiveness to pressure. The possibility of a cancerous lesion also was suggested.

The patient had the temperature of sepsis—a true hectic fever, with sweats. This was attributed to the absorption of septic matters from the bed-sore. The urine was alkaline, with high specific gravity. To confuse the case still more, the patient said that he had begun to have epilepsy a few years before the onset of spinal symptoms, and that these latter had come on after exposure to cold and wet.

The muscles of the legs were very soft and flabby, but apparently not truly atrophied. There was no fibrillation in them. Some months before death they reacted quite freely to both currents. Later they were not tested. Finally, the symptoms of tubercular infection of the lungs were observed.

The legs, especially the left, continued to be the seat of severe pain. They were contractured at the knees, the hamstring tendons being as taut as cords. A tap on the gastrocnemius caused extensive clonus, which, considering the post-mortem findings of neuritis, seems rather remarkable. It is explained by the fact that all the nerve trunks were not involved in equal degree. Death came from exhaustion.

At the autopsy an extensive bed-sore over the sacrum was observed. There was a noticeable depression of the spinous processes of the sixth and seventh dorsal vertebræ, especially the sixth. There was some evidence of an old endocarditis about the mitral valve. The upper lobe of the left lung was uniformly tuberculous, the tubercles being recent. The lower lobe was infiltrated, but less extensively, with tubercles. The right lung was tuberculous to a less extent. The right kidney contained miliary tubercles. An old catarrhal cystitis was found. The body of the sixth dorsal vertebra was carious. It was very soft and caseous, the mass touching the cord. At this point a pacchymeningitis surrounded the cord, which was somewhat softened. The thickened membrane and fibrinous deposits formed a felted mass on the anterior aspect of the cord.

In the cauda equina was found a lesion, which was quite distinct from that in the dorsal region. An inflammatory process had made its way from the sloughing bed-sore beneath the sacrum, evidently through the sacral foramina, and had invaded the lower end of the spinal canal. In this region the nerves of the cauda equina were lying in a fluid, which seemed to be a bloody serum, of which the lower end of the canal was full. The membranes were infected, and in some places inflamed. The nerves were variously involved; some were distinctly congested and swollen, others were not distinctly so to the naked eye. The process had been evidently a septic neuritis, caused by an extension of the septic process from the bed-sore to the contents of the spinal canal.

Description of Sections.[1]

At the level of the lesion.—The most prominent feature here is the enormously thickened dura mater, and the great tubercular mass attached to it upon the anterior aspect of the cord. The thickened mass apparently is a deposit of cheesy matter, and represents old and

[1] Prepared by Aimé, Assistant in the Pathological Laboratory at the Philadelphia Hospital.

degenerated tubercular matter, giant cells and inflammatory lymph. Its exact histological character, however, cannot be determined satisfactorily now, although there are numerous small bodies that stain deeply and suggest nucelar bodies. This mass was in direct contact with the carious bodies of the vertebræ. The cord itself at this level shows considerable evidence of myelitis, as softening, and some deformity which may be due to pressure. This evidence of pressure, however, is not sufficient to account for the clinical evidence of a transverse lesion, because, as can be seen readily, both the gray and white matter are not pressed out of shape or materially destroyed. The one exception to this is in the lateral pyramidal tracts, which are notably degenerated. There is a rim of degenerated tissue around the anterior border of the cord, evidently due to contact with the inflamed meninges. The

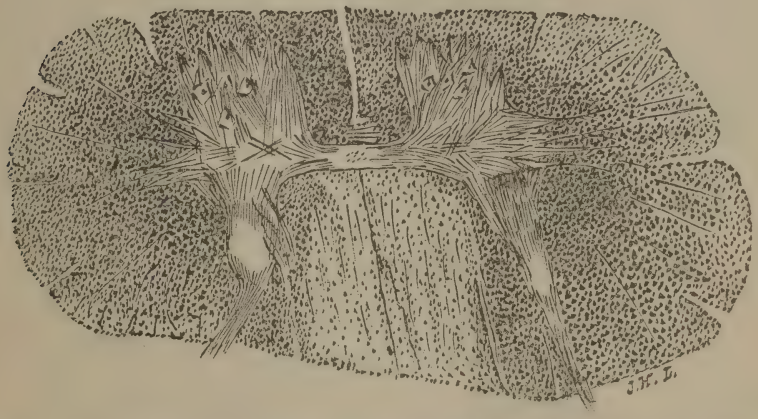

FIG. 1.—SECTION OF THE SPINAL CORD FROM A CASE OF POTT'S DISEASE. (AT THE SEAT OF CARIES.)

process has been a meningo-myelitis. It is a notable fact that at this level the posterior columns, which are removed farthest from the active lesion, present little, if any, evidence of degeneration.

At a level just about the upper edge of the lesion the appearance of degeneration is more marked. The process evidently has been more extended, (Fig. 1.) Very extensive degeneration is apparent in the posterior columns. This is more pronounced in the postero-internal columns than in the postero-external columns, but still the latter are not exempt. At this level, too, there is well-marked degeneration around the edge of the cord on the lateral and anterior aspects, the effect evidently of a meningitis, and through the substance of the cord thickened bands, apparently of connective tissue, can be traced (high

power). The direct pyramidal tracts here are not degenerated. The cord at this level is slightly out of shape; but the gray matter and anterior horns are well preserved.

Middle cervical.—(Fig. 2). This section exhibits well the characteristic upward degenerations of the spinal cord from a dorsal lesion. It is taken from a region well above the level of the lesion, so that all its degenerations may be said to be secondary, according to the Wallerian law, and not the direct result of the inflammatory process, which was at a point lower down the cord. This section is of great interest both physiologically and pathologically. First, the deep degeneration of the postero-internal columns (columns of Goll) is most conspicuous. Their contrast with the external columns (columns of Burdach) is

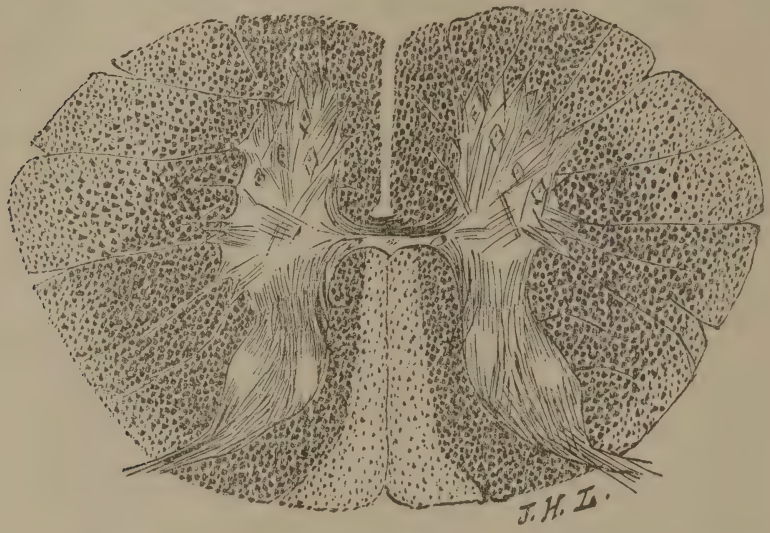

FIG. 2.—SECTION OF THE SPINAL CORD FROM A CASE OF POTT'S DISEASE. (CERVICAL REGION.)

marked, and their sharp demarcation from these. They have degenerated in their whole antero-posterior extent, that is, right up to the gray commissure, where the degeneration spreads out somewhat fan-shaped. This is characteristic of the ascending degeneration which follows a middle dorsal lesion, and differs from that which follows a lumbar lesion, which does not extend quite up to the gray commissure. This difference is due to the fact that the most posterior fibres in the columns of Goll are those that enter the cord at the lower levels. Second, the direct cerebellar tractt to the exterior of the lateral pyramidal tracts are notably degenerated. These also, being ascending fibres, have followed the law. The pyramidal tracts themselves, being

descending fibres, are here unchanged. Finally, the region of the antero-lateral ground-bundles, including Gower's tract, which degenerates upwards, shows quite extensive degeneration.

Just below the lesion the appearance of the cord is quite different. First, there is extensive inflammation and degeneration in the antero-lateral tracts. This is due evidently to the contact with the inflamed meninges at the point of spinal caries. Second, there is very marked degeneration of the lateral pyramidal tracts. These tracts, of course, degenerate downwards, and from this point onward to the end of the cord they present deep degeneration. On the other hand, from

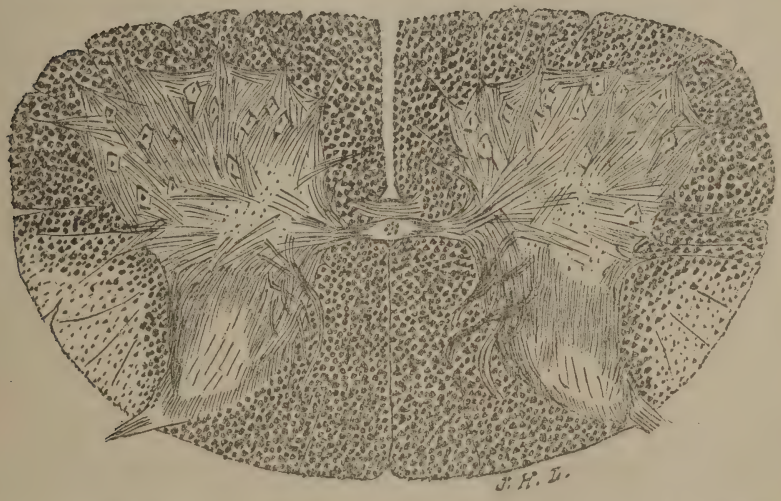

FIG. 3.—SECTION OF THE SPINAL CORD FROM A CASE OF POTT'S DISEASE. (LUMBAR REGION.)

this point downwards the posterior columns present no change. The gray matter at this point is apparently normal, and the cord presents no appearance of flattening or pressure.

In the lower dorsal region (just above the lumbar enlargement) there is still evidence on the anterior aspect of the cord of thickened membranes and a meningo-myelitis; while the pyramidal tracts are conspicuously degenerated. The vesicular columns of Clark are seen plainly here and are normal.

In the lumbar enlargement (Fig. 3). The cord is normal, except the lateral pyramidal tracts, which are smaller here than above and have come to the periphery. The gray matter is shown perfectly, especially the anterior horns; with their full supply of multipolar cells. It is to be noted especially here, in view of the inflammation of the

nerves of the cauda equina to be demonstrated later, that the posterior columns are apparently normal, and do not exhibit any trace of the degeneration that sometimes follows on a malignant neuritis.

Nerves of the Cauda Equina.—The sections exhibit the whole bundle of nerves cut transversely. As explained already, an active septic inflammation involving the membranes and the nerves was found post-mortem. The lower end of the spinal canal contained bloody serum and thickened membranes; the disease-process had spread evidently through from the underlying sloughing bed-sore, and was entirely distinct from the carious lesion in the dorsal region. In the midst of this inflammatory exudate the nerves of the cauda equina lay. They were in various stages and degrees of involvement. Some evidently were swollen, congested and actively inflamed. Others were not so much affected. This variation is shown plainly under the microscope. Some few of the trunks apparently are about normal, others are slightly involved, and from this up to the most extensive inflammation various stages are seen. In some the nerve sheath is broken, and the nerve-trunk has a disintegrated appearance. In some, again, the septa between the fasciculi are beautifully preserved, giving the divisions of the nerve with the regularity of a honey-comb, but the contents of the fasciculi, *i.e.*, the nerve fibres, are involved and in some cases destroyed.

CLINICAL HISTORY OF A CASE OF SPINDLE-CELLED SARCOMA OF THE CHORIOID, WITH A STUDY OF THE MICROSCOPIC CONDITION OF THE GROWTH.[1]

By Charles A. Oliver, A.M., M.D.,

One of the Attending Surgeons to Wills' Eye Hospital; one of the Ophthalmic Surgeons to the Presbyterian Hospital, Consulting Ophthalmic Surgeon to St. Timothy's Hospital, Philadelphia, etc.

X. Y. Z., of Indian Territory, an active, energetic and well-known business man of 34 years of age, consulted the writer for advice in reference to his left eye. He stated that five years previously he suddenly noticed that objects situated to the right side became dimmed when he attempted to look at them with his left eye. This

[1] Read before the meeting of the American Ophthalmological Society, held at New London Conn., July, 1893.

dimness gradually and painlessly crept over the whole field of vision until in little more than three years' time the eye became blind.

In October of 1889 he consulted Dr. J. H. Thompson, of Kansas City, to whom he complained of dimness of vision in the left eye (20-xl brought to 20-xxx by minus cylinder O. 50 D. axis sixty degrees, the vitreous about the disk being clouded.)

As he gave Dr. Thompson the history of primary syphilis six years previously, he was placed on tri-daily doses of thirty grains of iodide of potassium. Under this treatment the patient did reasonably well. At this time, however, as Dr. Thompson informs the writer, the patient had some trouble with his liver.

He was again seen in June of 1890, when a tumor of the chorioid was observed beneath a detachment of the retina, which Dr. Thompson —although afraid of sarcoma—was, upon account of the diminished tension and irregularity of the blood-vessels, inclined to believe was a detachment of the chorioid. Thinking that it might be syphilitic in character, he renewed the treatment, but in another month's time was enabled to make the diagnosis of sarcoma. He then begged the patient to have the growth removed.

Since that time the patient has had a number of varying diagnoses, such as retinal detachment, possible tumor, syphilitic gumma, etc., given to him. In spite of the fact, however, that he was almost constantly under some form of alterative treatment, the tumor-growth has gradually increased in size.

In the early spring of 1892 exacerbations of intense temporal neuralgia, more marked on the left side, supervened. These lasted several hours at a time and rendered the patient irritable, morose and unmanageable at times. At the same time, the left eye began to recurrently diverge until, in a period of a few weeks, it became fixed outwardly. It was then noticed that he several times lost the power of counting money, making change and performing arithmetical problems.

When first seen by the writer, on the 7th of June, 1892, a large yellowish-red, vascular growth was apparent in the upper outer part of the globe, just posterior to the crystalline lens. The broad, mushroom-like head of the growth, which was separated from the body of the mass by a ring-like constriction, curved sufficiently forwards, inwards and downwards to hide the upper, outward portion of the optic disk. The entire bulk of the tumor seemed to be enveloped in a membranous bag, which sharply curved around it in a fluid vitreous.

Although studied by strong illumination and highly magnifying convex lenses, the mass did not appear to move with any motion

given to the eyeball. The pupil, which was irregularly round, dilated to about four millimetres upon monocular exposure and failed to present any synechia. Tension was normal and no ciliary tenderness could be elicited upon the most pronounced palpation. Vision was absolutely lost and the iris failed to respond to the strongest light-stimulus from every meridian. Although there was a marked divergence of the left eye, and an inability for the internal rectus muscle of the same eye to act during attempts at convergence of the right eye upon a fine fixation object situated a short distance along the median line, yet the same muscle acted promptly in association with the right external rectus muscle in right lateral deviation.

Ophthalmoscopic examination without the use of a mydriatic, showed the optic-nerve head dimly through numerous vitreous opacities. The upper nerve distributions of the central retinal veins, which were all that could be plainly recognized, seemed somewhat enlarged and tortuous. Dilatation of the pupil to six millimetres in all meridians by cocaine, allowed the fundus to be fairly well seen. The optic disk was seven by eight diameters in apparent size with its long axis at 120 degrees. The scleral ring was visible all around. The central retinal vessels were everywhere tortuous, the inferior nasal branches being quite large. The growth, which was now certain, sprang from the upper outer portion of the chorioid and extended forwards, downwards and inwards to a point immediately behind the lens. Its periphery, which projected directly out into the vitreous chamber, could be recognized throughout its entire extent. The deeper-lying vessels of the growth could be seen underlying in many places those of the superimposed retina.

The right eye, which was functioning properly in every particular, was entirely free from any evidences of the disease.

The diagnosis being certain, an immediate enucleation was advised and accepted.

Careful physical examination failed to reveal any evidences of organic disease. The lungs were capacious, gave good resonance throughout and were free from râles. The heart was large for a man of his size, but not pathologically so. There were no murmurs and no evidences of any cardiac disease. The spleen and the liver were slightly, though insignificantly, enlarged. No enlargement of the superficial lymphatics could be recognized, and no lesions indicative of syphilis could be found. The urine, which was normal in appearance, had a specific gravity of 1015, and was free from albumin and sugar.

With the assistance of Dr. Daniel Longaker, enucleation was done on the following day under ether, there being but little hemorrhage. The external surface of the globe was carefully examined and

FIG. 1.

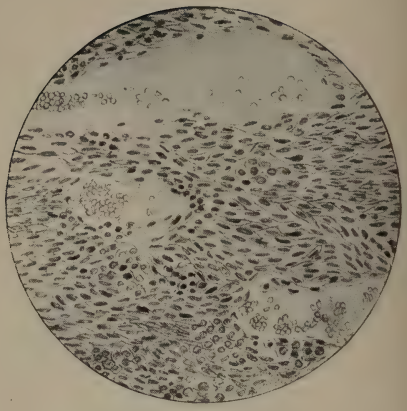

FIG. 2.

FIG. 5.

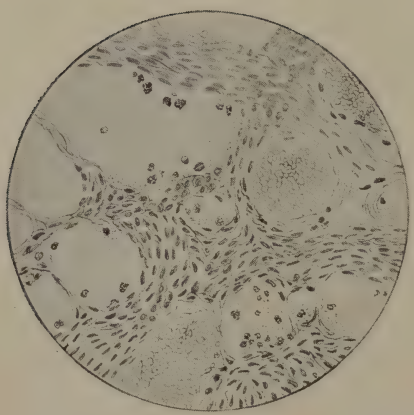

FIG. 3.

FIG. 4.

found to be entirely free from any nodules and maculæ. The proximal end of the optic nerve was re-excised far back and the orbital tissues were painstakingly, though (happily) unsuccessfully searched for any indication of extension. The socket healed firmly with but little conjunctival scar. In a month's time, after having had him placed under carefully gauged antisyphilitic treatment, an artificial eye was ordered and the patient was allowed to return to his home.

Immediately after the enucleation, in presence of the patient's wife, who would be thus made witness of the correctness of the diagnosis, the eyeball was opened by a series of circumlinear incisions extending half-way around the lower border of the optic-nerve entrance, and continued forward by two long longitudinal cuts in such a direction as to avoid touching the tumor-mass.

It is interesting to note that on the 16th of August the writer received the following note: "The operation has astonished the natives here. Most of them doubt my having a glass eye and my only way of convincing them is to put my fingers against it." In November of the same year he wrote: "I am pleased to be able to report to you a decided improvement in my health, and I have gained seventeen pounds since coming home. My appetite is excellent and I do not suffer from my old ailments. My headaches have left me entirely and I trust that they and I have parted friendship forever."

The patient has been seen by the writer within a few days. He has gained in weight, is sanguine, happy, and full of life and energy. The socket is clean, well-shaped and free from any irritation, nodules or maculations. No metastases in any available situation could be determined after the most careful physical examination.

The accompanying reproduction of a photograph (Fig. 5), which was kindly taken for the writer by Dr. Henry W. Cattell, Demonstrator of Morbid Anatomy in the Medical Department of the University of Pennsylvania, shows the exact size and position of the tumor-mass. The inferior wall of the globe (seen at the top) is turned back upon itself so as to expose the interior of the eye. The eye is resting upon its corneal surface, and the superior wall is everted by a couple of pins so as to bring the growth and its attachment more prominently into view.[1]

After the growth had been properly hardened in Müller's fluid, and had been placed in equal parts of this fluid and alcohol, the following measurements were made by Dr. Cattell. From the inside centre of the tumor to inside center of the crystalline lens the distance was

[1] The eversion of the wall of the globe by the pins in the photograph causes the summit of the tumor to appear to point more posteriorly than it did when the globe was in its proper shape and form.

eight millimetres. From the base of the tumor to the top of the growth the distance was nine and a half millimetres. The greatest length of the mass was in the longitudinal direction of the eye; this diameter, slightly beneath the top, measuring one centimetre from side to side. The vertical diameter at this point measured one-fourth of a millimetre less. The pedicle varied from nine to nine and a half millimetres across, at different points. The mass again slightly broadened as it reached its base. The tumor pointed from the concavity of the eye towards the crystalline lens in such a way as to make its convex top visible during life to the ophthalmoscope.

The specimen was submitted to Dr. Joseph McFarland, Demonstrator of Pathological Histology in the Medical Department of the University of Pennsylvania, to whom the writer is indebted for a careful microscopic examination, and the accompanying drawings.

As can be seen in Figures 3 and 4, the neoplastic formation proved to be a spindle celled sarcoma. Figure 1 shows how it sprang from the external layers of the chorioid, projected into the sclerotic tissue, and pootruded extensively into the vitreous chamber. The overlying retina was elevated by the mass, dissected loose in places, and so torn at many points as to frequently render the tumor devoid of any internal covering. The spindle cells, which are small, quite uniform in size and contain oval vesicular nuclei, run in irregular bundles. Throughout the growth, numerous cavernous vascular spaces or sinuses could be recognized. In Figure 2 three of them are visible, each containing red blood corpuscles, and, in Figure 3, one can be noticed that is partly surrounded by an imperfect fibrous wall. As pointed out by Dr. McFarland, a second variety of sinuses could be found. These are shown in Figure 3. To use the language of his report, he says: "A second variety of sinuses exists, similar to, but different from, the blood channels, and seemingly having no connection with them. In these, too, a second cellular element is present, viz., large, round, pigmented cells. These are almost constantly found in these open spaces, while but rarely seen in the blood channels. They are very probably leucocytes loaded with pigment granules which have been picked up in the interstices of the tissue. Just what these second series of channels represent is questionable. At first one would suspect them of being patches of degenerated tissue, but after careful study we have been led to conclude that they are cavernous lymph spaces. If this be correct, we can account for the many pigmented cells which they contain by supposing that leucocytes (which we find sparingly in the tissue), having picked up loads of pigment granules from the interstices of the tissue, are now returning through the lymph channels. Except for these pigmented cells, a little fibrin, and occasionally a little molecular matter, the channels were continually empty."

The case is of the utmost interest, not only upon account of the recognition of the growth very early in the non-irritative stage of the disease, the comparative youth of the patient, the relative infrequency of the variety of the neoplasm, as well as the promptness in removing the tumor and its limiting nidus at the commencement of the second stage, and the rapid disappearance of the curious, though interesting, motor symptoms after the enucleation and during the employment of the medicinal agents; but it is of the greatest prognostic value, where by careful and painstaking analysis of the microscopic findings, it was distinctly proved that the neoplastic cells had extended at their utmost point to about four-fifths the lateral extent of the most resistant (and yet the most important for the life of the patient) of the ocular tissues.

Fortunately, the position of the growth allowed its early recognition, and the late and sudden development of the incipient secondary stage gave sufficient time and enough pain for prompt and radical action to be taken both upon the part of the patient and his medical adviser. The rather large, diffusely placed and slowly growing cells, the abundance of intercellular material, and the point of origin of the growth in the outer layer of the chorioid (thus confirming Knapp's statement to this effect), are all of interest; whilst the scarcity of pigmentation in the youngest cells, the characteristic parallel tracks of the cellular elements, their uniformity of size, their typical oval vesicular nuclei, and the imperfectly walled vascular sinuses crowded in places with red blood corpuscles, teach much as to the etiology of the mechanism of the formation of the neoplasm; and lastly, the peculiar, though probable, cavernous lymph spaces containing pigment-laden leucocytes, gives a new point for reflection and study to the scientific student and educated physician.

OPERATIVE TREATMENT OF KNEE-JOINT DISEASE.[1]

By De Forest Willard, M.D.,

Clinical Professor of Orthopedic Surgery, University of Pennsylvania, Surgeon to the Presbyterian Hospital, etc., Philadelphia, Pa.

It is hardly necessary to state that the mechanical treatment of knee-joint disease is an essential condition to success both before and after operation. This mechanical protection of the joint is to be begun in the very inception of the disease, and is one of the greatest preventative measures; in a great majority of cases entirely superceding all necessity for operation. These measures should include absolute rest and fixation, and the avoidance of all weight bearing upon the limb, by the use of crutches, either axillary, perineal or isc hiatic.

A large number of neglected cases, however, will demand some form of operative relief.

The operative treatment of tubercular knee-joint disease may be divided into

I. Tenotomy with fixation.

II. Removal of serum.

III. Removal of pus accumulations and degenerated tissues inside and outside the joint.

(*a*) Aspiration.

(*b*) Incision and drainage.

(*c*) Erasion.

(*d*) Excision.

(*e*) Amputation.

IV. Hypodermic injections of anti-bacillary substances, as iodoform, chloride of zinc, etc., etc.

V. Removal of late deformity.

(*a*) Tenotomy.

(*b*) Forcible extension with tenotomy.

(*c*) Osteotomy.

(*d*) Partial or complete excision.

VI. Treatment of posterior displacement.

I. Tenotomy with Fixation.

In children under 12 years of age it is especially important to preserve the epiphyseal line as long as possible, in order to secure the greatest possible growth of the limb. Conservative surgery, therefore in these young children is to be carried to an extreme

[1] Read before the American Orthopoedic Association, September, 1893.

degree, and mechanical treatment should be most thoroughly insisted upon. Operative procedures, when necessary, should be conservative in character, advancing from the milder to the more extreme measures only when imperatively demanded. In the large majority of cases, even when marked flexion exists, and when evidences of induration about the joint are positive, it is wise to temporize, improving the position of the limb by tenotomy of the hamstring tendons with straightening of the limb, and securing immobilization by plaster-of-Paris. By these means many cases can be cured. Even if they advance ultimately to suppuration much time is thereby gained, with the corresponding growth alluded to.

The question of erasion will be considered under another heading, but radical measures on these young cases are especially to be deprecated.

II. Removal of Serum.

The prevention of synovial effusion consists first in subduing the inflammation by absolute rest in bed, a posterior splint slightly flexed at the knee; ice bags, or the continual dripping of iced water, and by other antiphlogistic remedies. Presuming that absorbents, blisters, and counter-irritants to produce absorption, have been subsequently used, and have proved unavailing, the question of tapping the joint should be considered. It is important to do this before suppuration takes place.

(*a*) *Aspiration.*—Aspiration for serous effusion, if performed antiseptically, rarely gives trouble, yet inflammatory conditions, and even deaths, have followed this operation. An aspirating trocar of medium size may be carried into the anterior part of the joint. Should the fluid be clear, rest and fixation should be continued, and the patient kept recumbent, with a pulley extension weight upon the limb. Should re-accumulation take place the operation may be repeated as long as only serum is drawn. When pus is definitely determined, or when the symptoms point to its formation, other methods should be considered.

III. Removal of Pus.

(*a*) *Aspiration* is of but little permanent service in the removal of pus accumulations save for diagnostic purposes.

(*b*) *Incision and Drainage.*—Incision into a knee is usually for the purpose of exploration, and the surgeon, previous to the etherization, should have obtained the permission of the patient, or his friends, to go forward with whatever operation may be advisable; usually it will be erasion or excision.

Simple incision is of but little service even in cases of purulent synovitis, which are acute in character. In tubercular cases, if the more radical operation is refused by the patient, of course, incision permits the introduction directly into the abscess of thoroughly asceptic and anti-bacillary substances, as iodoform, chloride of zinc, and the withdrawal of pus, which procedure facilitates the destruction of the bacilli. As a rule, however, these agents can be introduced subcutaneously into the deposit.

When an incision has been made, and pus found, it will, of course, be followed by drainage of the parts. This will be done either with rubber tubes, or with gauze packing, after syringing with peroxide of hydrogen, bichloride, or iodoform oil. Usually the wound, if packed for forty-eight hours and then closely sutured, the sutures being inserted at the time of operation, will heal kindly. If rubber drainage is used it should not be allowed to remain long in position, as a sinus will establish itself as the tube is slowly withdrawn. The mouth of the sinus can be kept open by a small piece of tube as long as it is desirable. Of course, throughout the whole treatment most rigid attention must be given to rest and fixation of the articulation. Without this adjunct all operative treatment will fail. The great difficulty is to keep a sinus entirely aseptic. Care should be taken to allow as much iodoform oil as possible to be retained in the joint at each dressing. When the discharge is long-continued, and the patient refuses another operation, the antiseptics must be changed every three weeks, as the tissue becomes accustomed to their use.

(*c*) *Erasion.*—What class of cases are suitable for erasion, and which should be reserved for excision? These are exceedingly important questions, and the answer is frequently impossible to be determined until the incision has been made.

Erasion is especially indicated in the pulpy form of degeneration; in cases where the involvement of the articulation itself is greater than that of the bone, and in children under 12 years of age, where there is a prospect that by adopting this measure shortening of the limb will be prevented, and in cases where the foci of disease are few and small. In all these cases removal of the diseased hard and soft parts may be performed with confidence, and most excellent results will be obtained.

To be of service the operation of erasion must be very thorough in its character. Every particle of the degenerated material must be removed, and the knife, scoop and gouge must be applied with vigor. The prolongations of the synovial membrane, above and below the patella, wherever involved, must be taken away. When such a degree of thorough removal is possible we may confidently hope for cessa-

tion of the disease, and even if the limb is anchylosed it will be of great service to the individual, since it will be but slightly shortened. In my experience relapses are less frequent when anchylosis in the straight position has taken place than when motion has been secured.

Every care must be taken during the operation to prevent infection of the surrounding tissues by frequent douching, and especially by the use of the hollow flushing gouge.

There are two methods of dressing such a wound; the preferable one is thorough packing with iodoform gauze, and then closing at the first dressing with previously inserted sutures. Drainage tubes may be employed in cases where it is uncertain that the entire deposit has been removed. The skin wound is closed, except at the points of exit of the drainage tubes, and the cavity thoroughly filled with iodoform oil (10 per cent.) at each dressing, after washing with bichloride and with peroxide of hydrogen, in order to guard against infection.

(*d*) *Excision.*—Where there has been prolonged suppuration, or where there are evidences of a large amount of dead bone, or where the patient has suffered from prolonged drain, especially about the age of puberty, and in adults, excision (or amputation) become imperative. Of course, excision is resorted to with much less frequency than in former days since the introduction of erasion; but in the cases above alluded to it is an operation of extreme value. In children under twelve years of age it is always well to avoid interference with the epiphyseal growth as long as possible in order to prevent the great disparity of limbs so frequently seen when early excision is performed. Tenotomy and fixation, as above described, will often succeed in preventing this more mutilating operation.

If excision is determined upon the operation should be thorough, but it is not always necessary to remove the entire diameter of the bone to a point as high as the extreme foci of disease. These foci may be gouged or scraped out, thus avoiding the extreme shortening which occurs when large excisions are made.

There have been different incisions proposed for this operation: I find nothing better than the ordinary horse-shoe cut, convexity downward, with division of the tendo-patella. It should commence well upon the sides of the condyles, to permit free inspection of the joint; thus it facilitates drainage and is in every way satisfactory. The straight incision, with sawing of the patella, I do not like, as union of the bone is not more probable than union of the tendo-patella, if the latter is carefully sutured. Very frequently the patella has to be removed, and for removal the straight incision offers no advantages over the curved one.

The question of drainage in excision of the knee must depend upon the judgment of the surgeon. If the wound has been thoroughly cleaned and dried then drainage may be omitted, the gauze packing before described being employed. In the majority of old suppurative cases, however, it is better to introduce a tube, at least for a few days.

The use of an Esmarch bandage renders the area of operation bloodless, and thus greater opportunity is secured for removal of all the diseased tissue; but it certainly favors subsequent oozing. Filling a wound with blood clot, as advocated by many surgeons, I have not found to hasten union.

The question of fixation of the excised ends has been the subject of much controversy. The use of ivory or steel nails, wire, kangaroo tendon, or silk-worm sutures and various other methods, have been advised. For myself, I prefer to depend upon the external splint entirely, believing that the methods mentioned do not favor union, and that their only recommendation is to secure rest of the parts. This can be done by other means; therefore, I apply immediately a plaster-of-Paris cast. This necessarily becomes soiled by the oozing of blood and serum, but in itself it is so much of an antiseptic that decomposition will not take place for a number of weeks. When removal is necessary the splint can be slit into anterior and posterior halves by sawing down either side, and the cap can be removed without disturbance of the limb. When partial healing has taken place a second cast can be applied, made strong anteriorly, and through which a large lateral and posterior window can be cut for dressing purposes.

Arched iron strips surrounding the joint and fixed by wide gypsum enclosures of thigh and leg are convenient for subsequent dressing, but do not hold the joint as perfectly in position as does the simple encasing with plaster-of-Paris. The same may be said of the bracketed splint so frequently employed.

(*e*) *Amputation.*—The removal of the limb in adults is, in many cases of extensive disease, the wisest procedure. In any case of doubt an exploratory incision into the joint gives the opportunity either for an excision or an amputation.

IV. Hypodermic Injections of Anti-bacillary Substances.

My experience with the method has not extended beyond fifty cases, too small a number to draw any conclusions of value. I am still testing it carefully, and while I have had excellent results in cases taken early, yet in this same class of cases I have also had good results without this procedure. The curative effects of this method, therefore, are still undetermined as far as I am concerned, especially as I always employ, in addition, all the mechanical measures so necessary for suc-

cess. I have always been most careful to secure the most absolute aseptic condition of person and instruments, yet suppuration has followed in a number of instances; possibly it would have occurred under any circumstances. Rise of temperature, pain, etc., have arisen however, so speedily that I cannot but infer that the disturbances have been due to the injection. The objection to the treatment is that it is painful, and is a source of great alarm and distress to children.

Thus far I have had no cases of iodoform poisoning, but a certain per cent. will doubtless occur. Chloride of zinc in my hands has proven more irritating than iodoform.

V. Removal of Late Deformity.

(1) Tenotomy.
(2) Forcible straightening.
(3) Osteotomy.
(4) Wedge-shaped excision.

(1) *Tenotomy.*—For the correction of flexion without anchylosis even with slight posterior displacement, tenotomy of the ham-string tendons is the best operation in the young, since if accompanied with subsequent fixation with gypsum it will in the future give an excellent position of limb, often without anchylosis. Opportunity is thus given for the lengthening of the bones by growth. In performing tenotomy care should be taken to avoid the popliteal vessels and the peroneal nerve. When there is thickening or contraction of the connective tissue in the popliteal space, an open incision is desirable rather than subcutaneous section, as much less risk is thereby incurred. With asepsis good results can be obtained in nearly every case. Few surgeons feel safe in cutting blindly in the popliteal region, and with improved methods of technique the open plan will, in chronic cases, be more satisfactory.

(2) *Forcible Straightening.*—Forcible extension should be applied with great caution in the majority of cases, even if there is false anchylosis, lest posterior displacement be produced, or inflammatory symptoms aroused. Manual extension is by far the safest plan, and should be very carefully and cautiously performed after subcutaneous or open section of the ham-strings. The contracted tissues should be slowly stretched and torn until the limb can be brought to a straight position, where it should be retained with a fixed dressing of gypsum.

Forcible instrumental replacement is also very effective.

The cases best suited for operation are those in which indications of tubercular infiltration and thickening about the articulation are minor in degree. In cases where there is much tuberculous deposit it is very dangerous to arouse fresh inflammatory conditions lest rapid degeneration and suppuration take place.

I have recently operated upon a number of cases in this manner with unusually good results, without pain or inflammation, and with subsequent anchylosis, thus securing an excellent walking position. This result I largely attribute to the absolute immobility secured with plaster-of-Paris, and to retaining this immobility until anchylosis has taken place, then compelling the patient to walk upon crutches from six to nine months afterward, and then fixing the knee-joint by apparatus for a year or two to prevent relapse.

(3) *Osteotomy.*—When there is anchylosis with deformity at a right angle osteotomy is not advisable, since the angle at which the femur is placed is so great that it is not likely to be a useful weight-bearing member. Excision in this case is the better operation. If the angle of anchylosis is moderate, however, osteotomy of the femur above the condyles may be performed with advantage. Rectification of the deformity and subsequent fixation with gypsum until thorough union is established will give a most useful limb.

It is well in these cases, as in all other operations for the rectification of knee-joint deformity, to prevent walking for a long period of time, and to protect the joint from traumatism for a number of months afterward, as relapses are very common. Osteotomy is certain to give good results without suppuration if careful cleanliness is enforced.

(4) *Excision.*—Excision, more or less wedge-shaped, is indicated in right-angled deformity in all cases where the deposit about the knee is great and the anchylosis bony.

The method of making the section will vary with the surgeon's ideas, and his eye must decide upon such section as will bring the bone to a degree of very slight flexion rather than that of hyper-extension. In regard to fixation of the fragment the same remarks will hold good as in cases of ordinary excision. If thoroughly and cleanly performed immediate closure and fixation can be secured. An Esmarch bandage assists in the rapidity of the operation, and its removal early will permit the oozing to cease before the wound is closed.

VI. Backward Displacement.

I know of no mechanical method for the gradual relief of backward displacement which is at all satisfactory. Such a condition necessarily indicates that the ligaments have been more or less destroyed, and as the posterior thigh muscles are stronger than the anterior, besides being placed in much better position for mechanical action upon the bones, slow yielding in the direction of flexion must occur. I have seen numerous most elaborately constructed splints, which were models from a mechanical point of view, but which were

absolutely useless as far as any effect upon the bones was concerned, since the tissues in the popliteal space become so sensitive under pressure that little good can be accomplished; hence excision is usually advisable.

Conclusions.

(1) Mechanical treatment by rest, fixation and the use of crutches, either axillary, perineal, or ischiatic, is absolutely essential both before and after operation.

(2) In children under 12 years of age conservative measures should be carried to the extreme, and all operative procedures should tend to non-interference of the epiphyseal line for as long a period as possible, in order to assist growth of the limb. In these young cases, therefore, tenotomy with subsequent fixation should be the primary procedure, to be followed by erasion when necessary, and by excision only when life is absolutely threatened.

(3) From 12 to 15 years of age conservatism should still be the rule, although the dangers from a shortened limb subsequent to operation are not so serious after growth has been completed. In adults operative treatment should be early and more radical in character, erasion still being preferable to excision, except in very degenerated cases.

(4) Amputation should be employed in children only as a "dernier resort;" in adults with extensive disease it is often a wise procedure.

(5) The introduction of anti-bacillary substances, both extra- and intra-articular, offers hope of retardation in the growth of bacilli, but as yet the procedure is in the experimental stage.

(6) After the subsidence of all inflammatory symptoms the late deformity should be overcome:

(*a*) By tenotomy, with forcible replacement.

(*b*) By excision; rarely by osteotomy.

THE GLOBULICIDAL ACTION OF BLOOD-SERUM.[1]

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It is well-known that if we inject the blood-serum of some animals into the veins of certain other species of animals, hemoglobinuria and albuminuria will result. The destruction of red blood-corpuscles has been observed under the microscope by mixing a drop of blood with serum from another species. This was investigated twenty years ago by Landois[2] in relation to transfusion. More recently it has been found that blood plasma, instead of being simply an inert solution of globulins, albumins, extractives and inorganic salts, whose chief function was to act as a means of conveying blood-corpuscles to different parts of the circulation, is really a powerfully active fluid, and performs a number of wonderful phenomena. It has been shown that the blood-serum from cases of infectious diseases, in which the bacteria are not found in the blood, contains in solution certain products of bacterial metabolism.

What seems more important, it has been found by Buchner, by Nuttall and many others, that the blood-serum of animals, refractive to certain diseases, is very highly destructive to the bacteria causing those diseases. This peculiar function has been called the germicidal or bactericidal action of blood-serum, and is destroyed by heating to 55° to 60° C. for some minutes. These observations are very important, and indicate that Metchinkoff's well-known theory of phagocytosis is not the only factor in the destruction of bacteria by the blood.

The fact is now clearly established that some animals, naturally susceptible to certain diseases, can be immunized to those diseases by the injection of the blood-serum of animals, either naturally immune or rendered immune artificially. Furthermore, *even after infection has taken place*, the injection of blood-serum of immune animals will neutralize the poison and terminate the disease. This very important practical use of blood-serum is the most promising thing of modern medicine, for now we are able to *cure* these diseases, and apparently in the way in which nature does it. Thanks to Behring, Kitasato, Cattani and Tizzoni, the Klemperers and others, the course of such diseases as tetanus, pneumonia and diphtheria can now be modified. With all these facts before us, the destruction of blood-corpuscles by a foreign serum has assumed a greater importance. Recently, Darem-

[1] Read before the Section on Physiology of the Pan-American Congress, 1893.

[2] Centralbl. für die med. Wissenschaft, 1873, pp. 883, 897.

berg[1] and Buchner[2] have studied this destruction of both red and white corpuscles by the serum of certain species of animals. This peculiar property of blood-serum has been called the globulicidal action. It was found that serum heated to 55° to 60° C. for some time, or serum diluted with water, or allowed to stand some time after it is taken from the body, loses its globulicidal action. All of these observations, together with those of Maragliano, on the globulicidal action of serum in pathological states, were done on the field of the microscope.

The experiments presented in this paper were made as follows: The blood-serum was obtained (except from man) by introducing, with antiseptic precautions, into the blood-vessel a sterilized long glass canula. By means of this the blood was received directly into a sterilized flask, and set aside in the ice-chest and allowed to clot. The clear serum was then injected, either intravenously or subcutaneously, into another animal, by means of a sterilized burette and canula. From man the blood was obtained from the veins of the arm after having rendered the skin antiseptic.

The effect of the injections upon the blood-corpuscles was determined by means of the Thoma hemocytometer. The variations between different counts of the normal blood with this instrument is slight. The blood was diluted with a 2.5 per cent. solution of bichromate of potash, or with a solution of sodium chloride. The normal was obtained by counting the corpuscles twice before the injection took place. After the injection the counts were made as often as possible, or as often as seemed necessary. As each counting occupies considerable time, the observations were often not as frequent as desirable. The counting and diluting were always done by one person.

The experiments were chiefly upon dogs and rabbits, and the blood was obtained for counting by sticking their shaved ears. From handling the ears of these animals so much, the number of leucocytes must, of course, vary greatly. So great is the variation between different observations in the normal state, that there must be a pronounced and constant change in their number in order to ascribe it to the injection. In a few instances frogs were used, but it was found that their blood could only be obtained with so much difficulty, and the number of corpuscles varied so much normally from the admixture of lymph, that it did not seem advisable to continue experimentation in this direction. Besides the numerical observations, it seemed also desirable to examine into the kinds of leucocytes. For this purpose cover-glass preparations were made, and stained by eosin and hematoxylin.

[1] Arch. de Méd. Exper. et d'anat. path., Par., 1891, III, p. 720.
[2] Sitzungsberichte des Aerztlichen Vereins München, II, 1892.

The leucocytes were divided as follows: (*a*) Lymphocytes; (*b*) large mononuclear; (*c*) transitional; (*d*) eosinophile, and (*e*) multinuclear. Five hundred leucocytes were counted at each observation.

SERUM OF MAN INJECTED INTO DOGS.

Experiment I.—Dog, Weight 52 Pounds.

12 M.	R. B. C., ... 6,550,000	4.30 P.M.	R. B. C., ... 7,120,000
	W. B. C., ... 15,000		W. B. C., ... 54,000
12.30 P.M.	R. B. C., ... 6,900,000	6 P.M.	R. B. C., ... 7,020,000
	W. B. C., ... 31,000		W. B. C., ... 37,000
12.45 P.M.	Injected per jugular vein 125 cc. serum 48 hours old, from Italian, aged 51, with thoracic aneurism. No symptoms.	Next day:	
		10 A.M.	R. B. C., ... 6,980,000
			W. B. C., ... 20,000
		3 P.M.	R. B. C., ... 7,000,000
2.30 P.M.	R. B. C., ... 6,800,000		

Experiment II.—Dog, Weight 15 Pounds.

3 P.M.	R. B. C., ... 7,300,000	6 P.M.	R. B. C., ... 7,050,000
	W. B. C., ... 20,000		W. B. C., ... 7,500
3.30 P.M.	R. B. C., ... 7,125,000	Urinated during night. Albuminuria.	
	W. B. C., ... 20,000	Next day:	
3.45 P.M.	Injected per jugular vein 100 cc. serum, as in Experiment I.	10 A.M.	R. B. C., ... 8,070,000
			W. B. C., ... 40,000
4.45 P.M.	R. B. C., ... 7,700,000	3 P.M.	R. B. C., ... 8,010,000
	W. B. C., ... 7,500		W. B. C., ... 45,000
No symptoms.			

Experiment III.—Dog, Weight 16½ Pounds.

3 P.M.	R. B. C., ... 4,400,000	5 P.M.	R. B. C., ... 4,200,000
	W. B. C., ... 10,000	5.45 P.M.	R. B. C., ... 4,700,000
3.30 P.M.	R. B. C., ... 4,375,000	Next day:	
	W. B. C., ... 6,250		R. B. C., ... 4,675,000
4.35 P.M.	Injected per jugular vein 125 cc. serum 6 hours old, from healthy young man, aged 21.		

In these three experiments in which human serum was injected into the veins of dogs, there was no destruction of either the red or the white corpuscles. Neither was there any alteration in the kinds of leucocytes in Experiment II, as shown by the following:

Normal. (500.)		6 P.M.	
Lymphocytes	7.0 per cent.	Lymphocytes	9.5 per cent.
Large mononuclear . . .	1.0 per cent.	Large mononuclear . . .	2.0 per cent.
Transitional	2.5 per cent.	Transitional	4.5 per cent.
Eosinophile	— per cent.	Eosinophile	— per cent.
Multinuclear	89.5 per cent.	Multinuclear	84.0 per cent.

In Experiment II albuminuria followed the injection. The urine was not examined by the spectroscope for hemoglobin, but the test by tr. guiac and hydrogen peroxide did not show its presence.

The kidneys were examined microscopically, and show a distinct change from the normal. The nuclei of the renal epithelium take the stain well, but the outline of the cells is lost and the convoluted tubules are filled with granular matter.

In order to see if human serum had any toxic effect upon dogs, a blood-pressure experiment was made, in which 100 cc. were injected into a dog weighing sixteen pounds. Immediately following the injection there was a slight fall of pressure, followed by a marked rise to above the normal. The pulse and respiration were at first slowed, but returned to the normal before the injection was completed.

SERUM OF MAN INJECTED INTO RABBITS.

Experiment IV.—Small Rabbit.

1 P.M. R. B. C., ... 4,750,000
W. B. C., . . . 9,250
2 P.M. R. B. C., ... 4,200,000
W. B. C., ... 7,750
From 3.14 to 3.25 P.M. injected into jugular vein 12 cc. serum from Italian with thoracic aneurism; serum 48 hours old.
3.26 P.M. R. B. C., ... 3,062,000
3.30 to 3.45 P.M. injected 12 cc., very slowly.
3.50 P.M. Paraplegic.
4 P.M. R. B. C., ... 1,070,000
No W. B. C. seen.
4.10 P.M. Comatose.
4.20 P.M. Died in convulsion.

Experiment V.—Large Black Rabbit.

3 P.M. R. B. C., ... 6,850,000
5.33 P.M., injected per jugular vein 12 cc. serum of healthy young man, 31 years old; serum 24 hours old.
5.40 P.M. No control over posterior extremities.
5.42 P.M. Convulsion.
5.42½ P.M. R. B. C., . . . 2,900,000
5.44 P.M. Died in convulsion.
Post-mortem: Right ventricle distended with dark fluid blood, and dark, very soft, non-adherent clots.
Left ventricle distended with dark fluid blood.

Experiment VI.—Black Rabbit of Medium Size.

3 P.M. R. B. C., ... 5,510,000
3.10–3.16 P.M., injected rapidly per jugular vein 19 cc. serum 48 hours old, from same man as that in Experiment V.
3.16 P.M., died without convulsion, of cardiac failure.
Blood from ear just at death showed:
R. B. C., ... 2,025,000

Experiment VII.—Large Gray Rabbit.

11 A.M. R. B. C., ... 4,475,000
W. B. C., ... 6,250
11.30 A.M. R. B. C., ... 4,680,000
W. B. C., ... 17,000
12.27–12.31 P.M. Injected slowly in jugular vein, 5 cc. serum 20 hours old, from man with aneurism.
12.31 P.M. Injected 5 cc. rapidly.
12.35 P.M. R. B. C., ... 2,150,000
W. B. C., ... 25,000
12.36 P.M. Died of cardiac failure.
Post-mortem: Right ventricle distended with very dark blood, and some soft, non-adherent clot, apparently just forming.

Experiment VIII.—Maltese Rabbit, of Medium Size.

3 P.M.	R. B. C., ... 5,250,000	5.25 P.M.	6 cc. injected very slowly.
	W. B. C., ... 6,000	5.30 P.M.	R. B. C., ... 3,500,000
3.30 P.M.	R. B. C., ... 5,000,000		Does not seem as sick as other rabbits have.
	W. B. C., ... 7,500		
4.10 P.M.	Injected very slowly, 3 cc. serum 26 hours' old, from young man, aged 21 years, and in good health.		Next day appears very sick; incoordinate in movements; no control of posterior extremities.
			R. B. C., ... 3,000,000
5 P.M	R. B. C., ... 3,875,000		Killed.

Experiment IX.—Gray Rabbit, of Medium Size.

4 P.M.	R. B. C., ... 5,000,000	5.20 P.M.	3 cc. slowly.
	W. B. C., ... 6,250	5.25 P.M.	R. B. C., ... 2,400,000
4.30 P.M.	R. B. C., ... 5,275,000	5.30 P.M.	4 cc. slowly.
5 P.M.	3 cc. per jugular, serum 48 hours' old, same as used in Experiment VIII.	5.33 P.M.	Gasping.
		5.35 P.M.	Slight convulsion and died. Blood from ear during convulsion showed R. B. C., ... 1,450,000
5.05 P.M.	R. B. C., ... 3,375,000		
5.10–5.13 P.M.	3 cc. injected slowly.		

Experiment X.—Maltese Rabbit, of Medium Size.

8 A.M.	R. B. C., ... 6,925,000	10.30 A.M.	Respiration very rapid.
	W. B. C., ... 10,000	10.50 A.M.	Purging; lying on side.
8.30 A.M.	R. B. C., ... 6,100,000	10.56 A.M.	R. B. C., ... 3,075,000
	W. B. C., ... 40,000	10.57 A.M.	Convulsion.
10 A.M.	Injected slowly per jugular vein, 3 cc. serum, *7 days' old*, from young man, aged 31.	11 A.M.	Another convulsion, and died in it.

Experiment XI.—Small Gray Rabbit.

8 P.M.	R. B. C., ... 6,650,000	10.30 P.M.	R. B. C., ... 4,150,000
8.30 P.M.	R. B. C., ... 6,500,000		W. B. C., ... 10,000
	W. B. C., ... 6,250	10.58 P.M.	Slight convulsion.
9.30–9.35 P.M.	Injected slowly, per jugular vein, 10 cc. human serum 8 days' old, after it had been heated to 55° C.	11 P.M.	Died in convulsion. Chest opened immediately; heart still beating; heart stopped in diastole; no cardiac thrombus; blood from right ventricle gave R. B. C., ... 4,740,000
9.45 P.M.	R. B. C., ... 3,550,000		
10.10 P.M.	R. B. C., ... 3,570,000		

Experiment XII.—Large White Rabbit.

12 M.	R. B. C., ... 6,825,000	2.20 P.M.	W. B. C., ... 3,000
	W. B. C., ... 5,000	2.40 P.M.	R. B. C., ... 5,400,000
12.30 P.M.	R. B. C., ... 6,000,000		W. B. C., ... 3,100
	W. B. C., ... 9,250	3 P.M.	R. B. C., ... 5,125,000
2.08–2.12 P.M.	Injected, per jugular vein, 15 cc. serum 8 days' old, heated to 56° C. for five minutes.		W. B. C., ... 9.000
		4.30 P.M.	R. B. C., ... 5,275,000
			W. B. C., ... 12,000
2.20 P.M.	R. B. C., ... 4,900,000		No symptoms.

Experiment XIII.—Small Brown Rabbit.

Subcutaneous Injections.

9 A.M.	R. B. C., ... 7,120,000	No symptoms.	
	W. B. C., ... 7,700	6 P.M.	Urinated freely. Urine contains albumin but no hemoglobin.
9.30 A.M.,	R. B. C., ... 7,025,000	6.30 P.M.	R. B. C., ... 6,500,000
	W. B. C., ... 7,500		W. B. C., ... 13,000
3 P.M.	R. B. C., ... 7,450,000	8.00 P.M.	R. B. C., ... 5,400,000
	W. B. C., ... 5,000		W. B. C., ... 4,700
3.00–3.15 P.M.	Injected 25 cc. human serum 4 days' old subcutneously.	9.30 P.M.	R. B. C., ... 5,540,000
			W. B. C., ... 7,700
4.15 P.M.	R. B. C., ... 6,570,000	12 midnight.	R. B. C., ... 5,550,000
	W. B. C., ... 6,250	Next day:	
5.30 P.M.	R. B. C., ... 6,950,000	8 A.M.	R. B. C., ... 5,975,000
	W. B. C., ... 4,800		

Experiment XIV.—Small Gray Rabbit.

12 M.	R. B. C., ... 6,000,000	6 P.M.	R. B. C., ... 6,450,000
	W. B. C., ... 20,000	Tumor at point of injection apparently same size as at 2 P.M.	
12.30 P.M.	R. B. C., ... 6,300,000	Next day:	
1 P.M.	Injected 20 cc. human serum 18 hours' old subcutaneously.	11 A.M.	R. B. C., ... 7,350,000
4 P.M.	R. B. C., ... 6,800,000	4 P.M.	R. B. C., ... 6,000,000

From these experiments it will be seen that when the blood-serum of man is injected *slowly* into the veins of rabbits, the red blood-corpuscles of the rabbit are destroyed very rapidly, soon sinking from 5,000,000 or 6,000,000 to 1,000,000, or to one-fifth their normal quantity. The animal usually dies in convulsions. Palsies are frequently present, especially a paraplegia. The pupils are dilated and as death comes on there is a marked exophthalmos. The respiration is at first slowed and later becomes labored and gasping. Death takes place by respiratory failure.

When the injection is *rapid* death occurs in a very few minutes and the convulsions are, as a rule, absent. In these cases there is also a rapid destruction of red blood-corpuscles, but the number is not reduced below one-half or one-third the normal. The dyspnœa and exophthalmos is also marked in these cases, but death comes on from cardiac failure, as a rule. Recovery has occurred after the intravenous injection of 9 cc. (Experiment VIII), while death has followed the exhibition of 3 cc. (Experiment X).

With subcutaneous injections there may be a slight destruction of corpuscles, but absorption is very slow and the globulicidal action only trifling, while the toxic symptoms were not noticed.

The globulicidal action was not lost by standing, as is shown by Experiments X and XI. Indeed, the toxicity seems to be greatly increased by standing, probably from some putrefactive process, although the serum was constantly kept in the ice chest. In Experiment X, in

which 3 cc. killed, the corpuscles were not diminished to any greater extent than in Experiment VIII, in which recovery followed the use of 9 cc.

Momentary heating of blood-serum to 55° C. does not destroy the toxic effect, although the globucidal seemed much less. Heating to 56° C. for five minutes diminishes the toxicity and globucidal action of blood-serum.

There does not seem to be any great change in the number of white blood-corpuscles. They are probably destroyed by the serum as the red corpuscles are, for they are always reduced in number when the red corpuscles are being destroyed, as from the injection of the serum of man into the veins of rabbits.

The kidneys of rabbits injected with the serum of man show a marked structural change. The tubules are filled with granular matter, the outline of the cells lost, the nuclei have refused the stain and the protoplasm is very granular.

The different kinds of leucocytes were examined as follows:

Experiment II.—Serum of Man Injected into Dog.

Normal.		6 P.M. (two hours after injection).	
Lymphocytes	7.0 per cent.	Lymphocytes	9.5 per cent.
Large mononuclear	1.0 per cent.	Large mononuclear	2.0 per cent.
Transitional	2.5 per cent.	Transitional	9.5 per cent.
Multinuclear	90.0 per cent.	Multinuclear	84.0 per cent.

Experiment IV.—Serum of Man Injected into Rabbit.

Normal.		4 P. M. (one-half hour after injection).	
Lymphocytes	40.6 per cent.	Lymphocytes	66.0 per cent.
Large mononuclear	3.0 per cent.	Large mononuclear	2.0 per cent.
Transitional	2.0 per cent.	Transitional	1.0 per cent.
Multinuclear	53.4 per cent.	Multinuclear	32.0 per cent.
Eosinophile	1.0 per cent.	4.18 P.M.	
		Lymphocytes	39.0 per cent.
		Multinuclear	21.0 per cent.

Experiment V.—Serum of Man Injected into Rabbit.

Normal.		12.35 P.M. (five minutes after injection).	
Lymphocytes	39.0 per cent.	Lymphocytes	38.3 per cent.
Large mononuclear	6.3 per cent.	Large mononuclear	2.3 per cent.
Transitional	5.3 per cent.	Transitional	4.0 per cent.
Eosinophile	1.0 per cent.	Multinuclear	55.0 per cent.
Multinuclear	48.3 per cent.		

From this it appears that when the serum of man causes a destruction of white corpuscles, as in the rabbit, the proportion of the multinuclear form is lessened, while there is a corresponding increase of the lymphocytes.

SERUM FROM MAN INJECTED INTO FROGS.

Experiment XV.—Medium-sized Frog.

11 A.M. R. B. C., ... 425,000
12 M. R. B. C., ... 416,000
12.15. Injected subcutaneously 15 cc. human serum 3 days' old.
7 P.M. R. B. C., ... 200,000
12 midnight. R. B. C., ... 217,000
Seems very sick.

Experiment XVI.—Large Frog.

3 P.M. R. B. C., ... 552,000
4 P.M. R. B. C., ... 438,000
5 PM. Injected subcutaneously 10 cc. human serum 3 days' old.
12 midnight. R. B. C., ... 310,000
Next day:
R. B. C., ... 320,000

DOG'S SERUM INJECTED INTO RABBITS.

Experiment XVII.—Large Brown Rabbit.

3.45. Etherized, canula into jugular vein.
3.48. Injected per jugular vein 3 cc. dog's serum 4 days' old.
3.50. Breathing slowly.
3.53. Slightly struggling.
3.55. Died.

Experiment XVIII.—White Rabbit, Medium Sized.

12 M. R. B. C., ... 5,600,000
W. B. C., ... 12,500
Canula in vein.
1.50 P.M. Injected per jugular vein 1 cc. dog's serum 1 day old.
2.10 P.M. Injected 1 cc.
2.20 P.M. Injected 1 cc.
2.25 P.M. R. B. C., ... 4,200,000
W. B. C., ... 12,000
2.38 P.M. 2 cc.
2.45 P.M. R. B. C., ... 4,680,000
W. B. C., ... 6,250
3. P.M. Injected 2 cc.
3.05 P.M. R. B. C., ... 4,960,000
W. B. C., ... 6,250
3.30 P.M. 6 cc. (slowly).
3.35 P.M. 2 cc.
3.38 P.M. Died in a mild convulsion.

Experiment XIX.—White Rabbit.

1.30 P.M. R. B. C., ... 5,066,000
W. B. C., ... 7,600
2.20 P.M. Canula in vein.
2.29 P.M. Injected 1 cc. dog's serum 48 hours' old.
2.35 P.M. Injected 1 cc.
2.40 P.M. Injected 1 cc.
2.42 P.M. R. B. C., ... 5,000,000
W. B. C., ... 4,000
3.10 P.M. Injected 1 cc.
3.15 P.M. Injected 1 cc.
3.20 P.M. Injected 1 cc.
3.25 P.M. R. B. C., ... 5,083,000
W. B. C., ... 4,000
48 P.M. Injected 1 cc.
3.53 P.M. Injected 1 cc.
4.00 P.M. Injected 1 cc.
4.05 P.M. R. B. C., ... 4,750,000
W. B. C., ... 3,000
4.28–4.40 P.M. Injected 4 cc.
4.45 P.M. R. B. C., ... 4,880,000
W. B. C., ... 1,600
4.55–5.38 P.M. Injected 9 cc.
5.40 P.M. R. B. C., ... 5,043,000
W. B. C., ... 2,000
6.00 P.M. R. B. C., ... 4,428,000
W. B. C., ... 1,170
6.10. P.M. Violent convulsion.
6.17 P.M. Died in convulsion.

Experiment XX.—Small Brown Rabbit.

3 P.M. R. B. C., ... 4,640,000
W. B. C., ... 12,000
3.30 P.M. R. B. C., ... 4,400,000
W. B. C., ... 5,000
3.50 P.M. Canula in jugular vein.
4.08–4.45 P.M. Injected 7 cc. dog's serum 4 days old.
4.50 P.M. R. B. C., ... 5,040,000
W. B. C., ... 10,000
4.55 P.M. Injected 1 cc.
5.10 P.M. R. B. C., ... 4,800,000
W. B. C., ... 10,000
5.15–5.40 P.M. Injected 6 cc.
5.40 P.M. R. B. C., ... 5,200,000
W. B. C., ... 11,000
5.45–6.10 P.M. Injected 10 cc.
6.10 P.M. R. B. C., ... 5,400,000
W. B. C., ... 7,700
6.20–6.35 P.M. Injected 8 cc.
6.35 P.M. R. B. C., ... 5,400,000
W. B. C., ... 12,500
Next day, noon:
R. B. C., ... 5,200,000
W. B. C., ... 28,000
Albuminuria.
Next day, noon:
R. B. C., ... 5,800,000
W. B. C., ... 9,375
Next day, noon:
R. B. C., ... 4,800,000
W. B. C., ... 12,000

Experiment XXI.—Large Brown Rabbit.

Subcutaneous Injections.

3 P.M. R. B. C., ... 5,700,000
W. B. C., ... 5,600
3.30 P.M. R. B. C., ... 6,022,000
W. B. C., ... 3,800
3.52–4.00 P.M. Injected 10 cc. dog's serum 1 day old, subcutaneously.
4.15 P.M. R. B. C., ... 6,000,000
W. B. C., ... 4,200
4.25–5.05 P.M. Injected 15 cc. subcutaneously.
6.00 P.M. R. B. C., ... 5,360,000
W. B. C., ... 8,600
6.30 P.M. R. B. C., ... 6,100,000
W. B. C., ... 9,000
Next day marked hemaglobinuria.
3 P.M. R. B. C., ... 4,460,00
W. B. C., ... 4,300
Next day:
R. B. C., ... 4,170,000
W. B. C., ... 6,500
Hemoglobinuria.
Next day:
R. B. C., ... 4,690,000
W. B. C., ... 8,300
Next day:
R. B. C., ... 5,100,000
W. B. C., ... 4,300
Next day:
R. B. C., ... 5,720,000
W. B. C., ... 3,700

Experiment XXII.—Small Brown Rabbit.

10.45 A.M. R. B. C., ... 6,400,000
W. B. C., ... 1,500
12.30 P.M. R. B. C., ... 6,840,000
W. B. C., ... 11,000
2.06 P.M. Injected subcutaneously 20 cc. dog's serum 4 days old.
3 P.M. R. B. C., ... 7,500,000
W. B. C., ... 1,500
4.05 P.M. R. B. C., ... 7,112,000
W. B. C., ... 10,000
6 P.M. R. B. C., ... 8,000,000
W. B. C., ... 6,250
Next day:
R. B. C., ... 7,280,000
W. B. C., ... 7,000

Experiment XXIII.—Small Black Rabbit.

10.30 A.M. R. B. C., ... 6,010,000
W. B. C., ... 3,300
12.30 P.M. R. B. C., ... 6,490,000
W. B. C., ... 6,200
1.50 P.M. Injected subcutaneously 15 cc. dog's serum 3 days old.
2.45 P.M. R. B. C., ... 6,030,000
W. B. C., ... 10,000
4 P.M. R. B. C., ... 6,300,000
W. B. C., ... 18,000
5.45 P.M. R. B. C., ... 6,200,000
W. B. C., ... 13,000
Next day:
R. B. C., ... 6,100,000
W. B. C., ... 9,100

Experiment XXIV.—White Rabbit.

2 P.M. R. B. C., ... 5,630,000
W. B. C., ... 7,200
2.30 P.M. R. B. C., ... 5,300,000
W. B. C., ... 7,600
4.45 P.M. Injected subcutaneously 25 cc. dog's serum 1 day old.
9 P.M. R. B. C., ... 5,400,000
W. B. C., ... 7,800
12 midnight. R. B. C., ... 5,500,000
W. B. C., ... 7,400
Next day:
6 A.M. R. B. C., ... 5,400,000
9 A.M. R. B. C., ... 5,960,000
12 noon. R. B. C., ... 5,400,000
7 P.M. R. B. C., ... 5,062,000
Next day:
R. B. C., ... 5,500,000
W. B. C., ... 10,000
Next day:
R. B. C., ... 5,700,000
W. B. C., ... 10,000
Albuminuria.

Experiment XXV.—White Rabbit.

2.30 P.M. R. B. C., ... 6,500,000
W. B. C., ... 14,000
5.15 P.M. Injected subcutaneously 25 cc. dog's serum 1 day old.
9 P.M. R. B. C., ... 5,800,000
W. B. C., ... 9,500
12 midnight. R. B. C., ... 6,800,000
W. B. C., ... 6,250
Next day:
7 A.M. R. B. C., ... 6,520,000
W. B. C., ... 16,000
12 noon. R. B. C., ... 5,800,000
W. B. C., ... 12,500
7 P.M. R. B. C., ... 6,800,000
W. B. C., ... 9,200
Next day:
R. B. C., ... 6,400,000
W. B. C., ... 9,350
Next day:
R. B. C., ... 7,000,000
W. B. C., ... 16,000
Albuminuria.

The different varieties of leucocytes of the rabbits injected with dog's serum were examined as follows:

Experiment XVII.

Normal.		Just at death—7 minutes after injection.	
Lymphocytes	44.0 per cent.	Lymphocytes	77.0 per cent.
Large mononuclear . . .	3.0 per cent.	Large mononuclear . . .	6.5 per cent.
Transitional	3.0 per cent.	Transitional	2.5 per cent.
Multinuclear	50.0 per cent.	Multinuclear	13.0 per cent.
Eosinophile	0.5 per cent.	Eosinophile	.2 per cent.

Experiment XIX.

Normal.	3.45 P.M., 1 hour after injection.	6 P.M.
Lymphocytes . . . 21.6 per cent.	38.0 per cent.	54.0 per cent.
Large mononuclear . 3.3 per cent.	4.0 per cent.	4.0 per cent.
Transitional . . . . 4.4 per cent.	1.0 per cent.	18.0 per cent.
Eosinophile . . . . 1.2 per cent.	1.0 per cent.	
Multinuclear . . . . 69.7 per cent.	56.0 per cent.	32.0 per cent.

Experiment XXI.

Normal.	5 P.M., 1 hour after subcutaneous injection.	Next Day.
Lymphocytes . . . 28.0 per cent.	29.0 per cent.	42.0 per cent.
Large mononuclear . 15.0 per cent.	8.0 per cent.	2.0 per cent.
Transitional . . . . 5.0 per cent.	7.0 per cent.	3.0 per cent.
Eosinophile . . . . 2.0 per cent.	2.0 per cent.	
Multinuclear . . . . 50.0 per cent.	54.0 per cent.	53.0 per cent.

Four days after injection.

Lymphocytes . . . . . 62.0 per cent.	Eosinophile . . . . . .6 per cent.
Large mononuclear . . . 3.0 per cent.	Multinuclear . . . . . 30.0 per cent.
Transitional . . . . . 3.0 per cent.	

These experiments show that dog's serum, introduced rapidly into the veins of rabbits, causes death in a very few minutes, while the slow injection may cause in several hours convulsion and death, or there may be complete recovery. The globulicidal action is not very pronounced, the number of red blood-corpuscles being only diminished to four-fifths their normal. The diminution was no greater in the fatal cases than in those terminating in recovery.

The leucocytes did not undergo any decided numerical alteration, but the proportion of lymhocytes was increased, with a diminution of the multinuclear form.

In one case there was a marked diminution of red blood-corpuscles with hemoglobinuria and albuminuria from the injection of 24 cc. of dog's serum *subcutaneously.* In four other experiments in which subcutaneous injections were used there was no change in the blood, the only result being an albuminuria. There was a distinct structural change in the kidneys of rabbits injected with dog's serum, although not so intense as in the cases in which the serum of man was injected. The lumen of the tubules were filled with granular matter, the cells lose their outline, and in many places even the nuclei refuse the stain, and the cells present a granular appearance.

In a single instance in which 10 cc. of dog's serum, two day's old, were injected subcutaneously into a frog, the animal was found dead at the end of six hours.

Serum of the Horse Injected into Rabbits.

The four experiments detailed below seem to indicate that horse's serum has no toxic effect upon rabbits. Although 76 cc. were injected

directly into the vein in one experiment, and 47 cc. in another, the corpuscles were not reduced below four-fifths their normal number. With subcutaneous injections there was no alteration. The conclusion seems to be warranted that horse's serum is not globulicidal for rabbit's corpuscles. There was no numerical alteration of the leucocytes, but in the two experiments in which intravenous injections were practiced, the lymphocytes were diminished in number, and the number of multinuclear forms increased. Albuminuria, but no hemoglobin, was observed.

Experiment XXVI.—Small Brown Rabbit

4.30 P.M.	R. B. C., ... 5,742,000	No symptoms.	
	W. B. C., ... 5,800	9.16–9.40 P.M.	Injected 25 cc.
5.30 P.M.	R. B. C., ... 5,960,000	9.45 P.M.	R. B. C., ... 4,810,000
	W. B. C., ... 6,500		W. B. C., ... 6,600
8.08–8.10 P.M.	Injected 12 cc. horse's serum 3 days old, per jugular vein.	9.50 P.M.	Urinated freely.
8.10–8.18 P.M.	Injected 14 cc.	10.45 P.M.	R. B. C., ... 4,910,000
8.30 P.M.	R. B. C., ... 5,166,000		W. B. C., ... 8,330
	W. B. C., ... 31,500	12.30 A.M.	R. B. C., ... 4,550,000
8.40–8.45 P.M.	Injected 10 cc.		W. B. C., ... 27,000
8.45–8.55 P.M.	Injected 15 cc.		Next day:
9 P.M.	R. B. C., ... 5,085,000	11 A.M.	R. B. C., ... 5,320,000
	W. B. C., ... 8,200		W. B. C., ... 9,800

Experiment XXVII.—Small Black Rabbit.

5 P.M.	R. B. C., ... 5,360,000	7.30 P.M.	R. B. C., ... 4,080,000
	W. B. C., ... 9,375		W. B. C., ... 7,500
5.30 P.M.	R. B. C., ... 5,600,000	8.30 P.M.	R. B. C., ... 4,200,000
	W. B. C., ... 5,000		W. B. C., ... 20,000
5.55–6.19 P.M.	Injected per jugular vein 10 cc. horse's serum 2 days old.	9.30 P.M.	R. B. C., ... 4,150,000
			W. B. C., ... 10,000
6.20 P.M.	R. B. C., ... 5,160,000	11.30 P.M.	Urinated. Albuminuria.
	W. B. C., ... 11,000		R. B. C., ... 4,825,000
6.25–6.50 P.M.	Injected 17 cc.		W. B. C., ... 18,000
6.50 P.M.	R. B. C., ... 4,720,000		Next day:
	W. B. C., ... 12,000	11 A.M.	R. B. C., ... 4,125,000
6.55 P.M.	Injected 5 cc.		W. B. C., ... 20,000
7–7.30 P.M.	Injected 15 cc.		

Experiment XXVIII.—Large Gray Rabbit.

3 P.M.	R. B. C., ... 5,800,000	1 A.M.	R. B. C., ... 5,720,000
	W. B. C., ... 5,200		W. B. C., ... 2,200
3.30 P.M.	R. B. C., ... 5,700,000		Next day.
	W. B. C., ... 4,000	10 A.M.	R. B. C., ... 5,900,000
5.45 P.M.	Injected subcutaneously 30 cc. horse's serum 24 hours old.		W. B. C., ... 10,000
		3 P.M.	R. B. C., ... 5,800,000
8.15 P.M.	R. B. C., ... 5,800,000		W. B. C., ... 5,000
	W. B. C., ... 6,700	10 P.M.	R. B. C., ... 5,850,000
10.30 P.M.	R. B. C., ... 5,820,000		W. B. C., ... 8,500
	W. B. C., ... 6,400		

Experiment XXIX.—Small Brown Rabbit.

4 P.M.	R. B. C., ... 4,680,000	10.30 P.M.	W. B. C., ... 6,250
	W. B. C., ... 7,500	Next day.	
4.30 P.M.	R. B. C., ... 4,960,000	1 A.M.	R. B. C., ... 5,080,000
	W. B. C., ... 10,000		W. B. C., ... 6,250
5.15 P.M.	Injected 20 cc. horse's serum	10 A.M.	R. B. C., ... 6,040,000
	1 day old, subcutaneously.		W. B. C., ... 5,000
8.15 P.M.	R. B. C., ... 4,680,000	3 P.M.	R. B. C., ... 5,600,000
	W. B. C., ... 5,000		W. B. C., ... 9,000
10.30 P.M.	R. B. C., ... 5,240,000		

The leucocytes were examined in fixed preparation, as follows:

Experiment XXVI.

	Normal.	8.40 P.M.	9 P.M.	10.45 P.M.	12.30 A.M.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Lymphocytes	25.0	19.0	30.0	15.0	14.2
Large mononuclear	2.0	7.0	3.0	.5	1.5
Transitional	2.0	5.0	2.4	1.0	2.0
Eosinophile	1.0	1.0	.6	.7	.3
Multinuclear	70.0	68.0	64.0	83.0	82.0

Experiment XXVII.

	Normal.	6.20 P.M.	6.50 P.M.	7.30 P.M.	7.45 P.M.	9.30 P.M.	11.30 P.M.	Next Day.
	PerCt.	PerCt.	PerCt.	PerCt.	PerCt.	PerCt.	PerCt.	PerCt.
Lymphocytes	23.4	26.0	26.5	15.0	10.0	9.1	7.0	13.0
Large mononuclear	2.2	2.6	2.5	1.5	1.8	1.0	1.3	3.0
Transitional	2.5	2.3	3.4	2.0	4.6	1.5	1.6	3.5
Eosinophile	. . .	1.5	.6	. . .	. . .	.1	. . .	.8
Multinuclear	71.3	67.6	67.0	81.5	83.6	87.4	90.1	79.7

Experiment XXVIII.

	Normal.	10 P.M.	Next Day. 10 A.M.	10 P.M.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.
Lymphocytes	22.8	23.4	26.0	30.0
Large mononuclear	1.9	1.0	1.0	1.0
Transitional	1.7	2.4	2.4	1.5
Eosinophile	.7	1.6	.4	. . . . .
Multinuclear	73.0	71.6	70.0	67.5

CAT'S SERUM INJECTED INTO THE RABBIT.

Experiment XXX.—Large Yellow Rabbit.

3.30 P.M.	R. B. C., ... 5,625,000	5.15 P.M.	R. B. C., ... 5,140,000
4.00 P.M.	R. B. C., ... 5,850,000	5.35 P.M.	R. B. C., ... 5,100,000
	W. B. C., ... 7,500	6.00 P.M.	R. B. C., ... 5,500,000
4.55–5.00 P.M.	Injected per jugular vein 10 cc. of cat's serum 1 day old.	No symptoms.	

SHEEP'S SERUM INJECTED INTO THE CAT.

Experiment XXXI.—Healthy Cat of Medium Size.

3.30 P.M.	R. B. C., ... 5,200,000		W. B. C., ... 11,000
	W. B. C., ... 29,000	4.35 P.M.	R. B. C., ... 4,500,000
4 P.M.	R. B. C., ... 5,125,000		W. B. C., ... 12,000
4.05–4.10 P.M.	Injected per jugular vein 20 cc. sheep's serum 1 day old.	5 P.M.	R. B. C., ... 5,000,000
		No symptoms.	
4.15 P.M.	R. B. C., ... 5,020,000		

Sheep's serum does not seem toxic to cats, and it is probable that it is not actively globulicidal, and, indeed, it is doubtful if it has any such action.

To recapitulate: Of the different blood serums used in these experiments, the most toxic and the most actively globulicidal is human serum injected into rabbits. When injected rapidly into the veins it causes death in a very few minutes, the corpuscles being diminished to one-half or one-third their normal quantity; when injected slowly, death comes on much later, the corpuscles being reduced to one-fifth their normal. Upon dogs human serum has neither a toxic nor globulicidal action. With frogs there is a decided globulicidal and toxic effect.

Dogs' serum is toxic when injected rapidly into the veins of rabbits; when injected slowly, in some cases death comes on with slight diminution of red blood-corpuscles, while in others recovery occurs even after the use of 30 cc., and there is but slight alteration in the number of corpuscles.

The serum of the horse is neither toxic nor distinctly globulicidal, when injected into rabbits.

The serum of the cat does not appear to be toxic nor globulicidal when injected into the rabbit.

Serum of the sheep is neither toxic nor globulicidal for cats.

Heat destroys both the toxic and globulicidal action, but these properties are not lost by standing in a cool place for one week.

There is no great alteration in the number of leucocytes, except that they seem to be reduced in number when the red blood-corpuscles are destroyed.

When human or canine serum is injected into the rabbit the pro-

portion of lymphocytes seems to be increased, while the multinuclear, or oldest of the leucocytes, are correspondingly diminished.

When the serum of the horse was injected into the rabbit there was a slight diminution of lymphocytes, while the multinuclear form was more abundant.

From the fact that the serum of the dog is toxic for rabbits, without having any decided globulicidal effect, and also that human serum injected rapidly into rabbits causes death in a few minutes, before the corpuscles are reduced below one-third their normal, while the slow injection causes a reduction to one-fith of the normal number before death, it seems probable that the toxicity is not dependent upon the globulicidal action, and indicates a multiplicity of poisonous substances in the serum. The fact that heating destroys these actions indicates their albuminous nature.

Buchner has also found that the globulicidal action of serum disappears when it is diluted with water, but reappears on the addition of sodium chloride.

Maragliano[1] has found that in a number of diseases in man, in which the blood is altered, there is a great increase in the globulicidal action of the serum—destroying not only the corpuscles of different species, but also of healthy men. Besides this the hemoglobin was also destroyed, and did not remain in solution in the serum as when the red blood-corpuscles are destroyed by other agents.

From the experiments detailed in this paper it will be seen that the corpuscles of an animal are not destroyed by *any* foreign serum. The only serums exerting a toxic or globulicidal action were those of flesh-eating animals—man and dog—while serum from man had no effect on the dog. But serum of the cat had no effect upon the rabbit.

On the other hand, serum of the sheep had no effect upon the cat. In studying transfusion it was found by Panum, Ponfick and others, that lambs' serum in large quantities is toxic for dogs. Lambs' serum has been injected into tubercular patients without any unpleasant symptoms. Rummo[2] has found that the serum of the ox is toxic for dogs. From this it would appear that there is no general law for the interaction of serums. Rummo has studied the toxicity of the blood-serum of different species of animals. The experiments in this paper indicate that human serum is more toxic for rabbits than found by him, but most of my injections were intravenous. In those cases in which death occurred from the injection of human or canine serum, a cardiac thrombus was never found, but the ventricles were distended with fluid blood, often containing dark, non-adherent and very soft clots—such as form at the agonic period of death.

[1] Berlin. klin. Woch., 1892, p. 765.
[2] Trans. Tenth International Congress, Vol. II, p. 198.

MEMORANDA.

CONGENITAL ABSENCE OF THE VAGINAL CERVIX.

S. J., a colored woman, 26 years of age, was admitted to the Gynecean Hospital, September 4, 1893. She gave the following history: Menstrual bleeding began when she was 18 years old, and was preceded and accompanied by intense pain in the lower abdomen. The subsequent menstrual periods were somewhat irregular and seem to to have occurred in the following order: For three consecutive periods the pain was so great as to render her delirious; for most of this time she was unconscious of her surroundings; she thinks that there was no bleeding from the vagina; for three consecutive periods subsequent to this she also suffered with pain, though of less degree, retained her mental faculties and had bleeding from the vagina of two or three days duration; she then again passed through three months of pain and delirium, to be followed by three months of only comparative relief. This state of things had existed for about seven years. Her account was confirmed by a friend who had nursed her through several periods of delirium. She had been married at the age of 21, but had never conceived, and her suffering had been increased by marriage. There had been a yellow vaginal discharge for several years.

Examination showed the external genitals to be normal and well developed. The vagina was of the normal size and length. There was no sign of os uteri or vaginal cervix. The vagina was simply a cul-de-sac, its mucous membrane being uniform throughout, with no indication of the cervix uteri and no cicatrices of any kind. On the anterior vaginal wall, about three-quarters of an inch above the external meatus, were four fistulous openings, each of which admitted the point of a probe. Pus escaped from these openings. The uterus could be felt by bimanual examination about three times the normal size, retroposed and generally adherent. All attempts made to pass a probe through the openings in the anterior vaginal wall into the uterus were unsuccessful, though these openings undoubtedly communicated with the uterine cavity. Celiotomy was performed September 13.

There was no trace of peritoneum anywhere to be found. The intestinal loops were attached to each other and to the abdominal walls as far as examined (as high as the umbilicus) by loose connective tissue. They were easily separated without much bleeding. There were no firm adhesions such as usually indicate previous inflammation except in the immediate neighborhood of the uterus. The uterus was

entirely buried by densely-adherent loops of intestine which were separated with difficulty. There were no broad ligaments. The round ligaments were ligated, two ligatures were placed on each side of the uterus, one including a mass of tissue about the level of the cornua, and the other about the level of the internal os. The uterus was amputated immediately below the internal os. The cervical canal below the internal os was found dilated to about the calibre of the index finger, and was filled with a yellow purulent mucus. An unsuccessful attempt was made to pass a probe from the cervix into the vagina. A trocar was then thrust through the cervix into the vagina, a rubber drainage tube passed through, the cervical stump closed, and the abdomen was drained with a glass tube. The recovery was uneventful.

Dr. Beyea reports as follows on the specimen removed: The uterus is much enlarged; 4½ inches long, 2½ inches broad; cavity, 3½ inches deep; cervix, 1¼ inches long. The uterus is surmounted by a hydrosalpinx the size of a small orange. The entire uterus and hydrosalpinx are covered by dense organized adhesions. The hydrosalpinx has developed from the right tube. Both ovaries are markedly atrophied and buried in dense adhesions close to the sides of the uterus. The left tube is adherent with its ovary. The wall of the hydrosalpinx is composed of dense fibrous tissue, and is with difficulty dissected from the fundus of the uterus. The cyst contains about two ounces of clear fluid. The cervix is very long, and the arbor vitæ are very well marked.

The condition of the peritoneum in the case which I have reported was peculiar and suggested abnormality or absence of this membrane, though it is probable that the inflammatory action which brought about the hydrosalpinx also destroyed the general peritoneum.

C. B. Penrose, M.D., Ph.D.

SYMMETRICAL HEMORRHAGIC INFARCT OF BOTH LUNGS.

The subject was a girl, 18 years old, born in Pennsylvania of American parents.

Family History.—Her mother died the age of 40 years, of abscess of the liver. Her father, brothers and sisters are all living and in good health. No history of heart disease or chronic rheumatism in any member of the family was elicited.

Personal History.—Up to the time when she first came under observation, about seven months before her death, she had had no severe illness, although she easily took cold and would frequently have a cough the greater part of the winter. She was of slight figure, fairly

well nourished, but of a strangely phlegmatic though not melancholic temperament. About six months before she came under notice she was treated at the University Hospital for amenorrhea, and was subsequently transferred to the Medical Dispensary for treatment for dyspepsia. About a month later I was called to see her at her home. She was then suffering greatly from dyspnea and a frequent, dry, distressing cough. Her feet and legs were swollen and edematous, and she complained greatly of frontal headache, with some pain and distress over the heart.

On examination there was bulging over the precordia, the apex beat was displaced downward and to the left and was plainly visible—the whole of the left breast could be seen heaving under the impulse of the hypertrophied heart. Percussion gave considerable increase of the area of cardiac dulness, while auscultation revealed a loud blowing systolic murmur, which was transmitted to the axilla, and could be heard with great distinctness posteriorly.

The lungs, with the exception of a few dry râles on the right side of chest and harsh inspiration on both sides, revealed nothing abnormal.

The patient rallied from this attack, but succumbed to a second acute invasion about four months later; the symptoms of the second were simply an exaggeration of those of the first attack.

At the autopsy the pericardial sac contained less than one ounce of clear serum; the heart was much enlarged, weighing about fourteen ounces; the muscle substance was firm in consistency but yellowish in color. The wall of the left ventricle was much thickened, the cavity somewhat enlarged and the endocardium thickened and lustreless. The mitral orifice admitted three fingers easily; the valves, especially the anterior, were much thickened and irregular, principally along the line of contact, showing considerable inflammation but no ulcers. The aortic valves were thickened but otherwise normal. On the right side the muscle walls were normal in thickness, but the cavities were much dilated. The lungs, on opening, appeared to be normal in color, size and consistency, but on examination there was found at each apex anteriorly and about the position of the anterior axillary line, a perfectly typical hemorrhagic infarct, measuring in each case about two inches across the base and extending into the lung substance a like distance. There was considerable hypostatic congestion on both sides posteriorly, otherwise the lungs on section revealed nothing that was abnormal. The spleen was normal. The kidneys were slightly enlarged and congested, but otherwise normal. Other organs not examined. The points of interest were the absence in both personal and family history of any starting point for the endocarditis, and secondly, the occurrence of the perfectly symmetrical hemorrhagic infarcts.

FRANK MASSEY, M.D.

EDITORIAL.

MEDICAL INCONSISTENCIES.

MAJESTICALLY seated on her lofty throne, whose massive foundation claims as its elements the universities of the world—with their venerable spires looking down in frigid silence on the assumptions and contentions of to-day, just as they viewed in scorn the superstition and cruelty of past ages, which superstition and cruelty drew its sanction from a perverted use of the meagre stock of learning not only dignified by the exaggerated epithet of science, but dogmatically fortified by ecclesiastical authority as immutable—the proud science of medicine sways its sceptre over the civilized world in undivided supremacy. True, a large and ungainly parasite has fattened on its rich and generous body, and bloated by the excrement which scavenger-like it has appropriated and assimilated, it assumes in the shadow of its host gigantic proportions. Like all scavengers it follows after its host for its support, but never precedes it. The sphinx-like silence remains unbroken to all our interrogations. What is disease? What is life? No answer. Pathology deals with the graveyard of diseases, not with their living state. Biology, quoting from "Faust:"

> Wer will was Lebendig's erkennen und beschreiben,
> Sucht erst den Geist heraus zutreiben,
> Dann hat er die Theile in seiner Hand,
> Fehlt leider nur das geistige Band.

As long as the problem of life remains unsolved, just so long will the nature of disease remain a sealed book. The forces which contribute to the production of a living creature exert themselves hundreds of times in vain. When a fortunate combination at length succeeds in starting the complicated process which requires for its consummation a lengthy period of time and the co-existence of many favoring conditions, and the completed creature assumes an individual existence, on every hand inimical forces rise up to thwart its further progress. One after another is subdued or else the existence is terminated immaturely. The type of disease has thus a two-sided aspect, viz., the feebleness of the defensive power and the vigor of the assailing forces. Exposure to the contagion of disease without contracting it verifies the existence of this defensive power. Recovery of an organ or of the whole body after its invasion by disease is an evidence also of the same truth.

It cannot be gainsaid that both the brain and body of the physician have been taxed to the utmost to bring up from the abyss of the unknown the treasures of knowledge that we yearn for with such burning desire, in order to place upon the scroll of science the indisputable interpretation

of all the contradictory phenomena which array themselves in hostile opposition to every theory which may be offered as the solution of the elusive malevolent influence tersely described as disease.

Could we imagine for ourselves an exalted position at the very origin of disease whence all its varied and contradictory ramifications emanated, the recognition of type and variety would be easy and certain. So distant are we, however, from that centre that the circle over which we must travel in order to classify each phase requires laborious comparison, intimate acquaintance with many varieties and intense acuteness of perception. Is it strange, then, that we find in the opinions of various eminent authorities some lack of uniformity? Could it be expected that with such an enormous scope of the mental horizon there should be complete coincidence of boundaries? The failure of equally eminent authorities to agree, or at least not to have diametrically opposite views, is one of the weakest points in medical science. Recognizing that medicine is an art, and that no art can be described in any but the most general terms, and therefore can not be described at all, we may appreciate that the wealth of skill that lies concealed in every true physician and surgeon can not be incorporated in an unyielding precept or aphorism, but must derive all its force from his judgment, which is only the pearl of experience, or from mental qualities which none can understand but those who possess them. In view of the authoritative character of all declarations which proceed from those who have gained by ability in action and fecundity in thought a position to stamp upon many others the seal of their own opinions, may it not be justly urged as a measure which can only strengthen the edifice whose worthy stones we all desire to be, and lift from the minds of those who halt between two opinions, an impediment to action and an embarrassment to thought, to eliminate from their precepts the ambiguity which settles like a mist over conflicting details which cannot be essential since neither mars the brilliancy of the acquisitions which its advocate, guided by the unwritten law through which his fertile intellect controls the workings of his hands, realizes in the face of obstacles both material and immaterial.

ALUMNI NOTES.

The Wistar Institute of Anatomy and Biology was founded in 1892 for the preservation of the Wistar and Horner Museums, and the promotion of advanced study and research in anatomy and biology. The valuable collection of anatomical preparations made by Dr. Casper Wistar for the illustration of his lectures, while he was Professor of

Anatomy, from 1808 to 1818, was presented to the University, after his death, by his widow. Thus the nucleus was formed, and the successors of Dr. Wistar in the Chair of Anatomy have constantly added to this collection, until now it stands almost without an equal of its kind in this country. The contributions of Dr. William E. Horner, in 1853, were so considerable that his name was added to the title of the Museum.

The Institute now occupies a handsome structure of yellow brick and stone, directly opposite "Medical Hall," extending along the base of the triangular lot (Thirty-sixth Street), between Woodland Avenue and Spruce Street, which accommodates at its apex the District Police Station. The building has been erected at great expense, and is fireproof throughout. It has been sufficiently endowed for beginning the advanced and original work for which it is intended, and the most liberal opportunities will be offered for post-graduate study and original investigation. The work of preparation is not yet complete, but as soon as the building is ready, and the apparatus in position, announcements will be made of the special courses, and opportunities for individual study which the Institute will be prepared to offer. It is intended that the laboratories and offices adjoining the museum proper shall be thoroughly equipped with all the instruments and accessories required in the preparation and preservation of anatomical specimens, so that every facility may be provided for the work of original investigators, under the supervision of a competent director and skilled assistants. While the Institute is a distinct corporation, its property and funds being held under a separate trust, it is so organically united with the University as to constitute one of its departments, and to be, within the limits of the foundation, under its control. Dr. Harrison Allen, who graduated in the class of 1861, has been appointed director. By this selection of its guiding officer the Institute has secured a man most eminently fitted for the position, by reason of his extensive knowlege of anatomy, and by his well-known professional attainments.

Among thirty-nine graduates of the Medical Department, practicing in New York City at the present writing, are Dr. Charles F. Guillou, of 26 East Eleventh Street, a member of the class of 1836, and Dr. Meredith Clymer, of 65 West Thirty-eighth Street, a member of the class of 1837. In late years almost every graduating class has sent one or more representatives to this great city. Of the class of 1889, Dr. Thomas J. Harris, of 117 East Fortieth Street, formerly a resident physician at the Philadelphia Hospital, is now acting as assistant surgeon in the Manhattan Eye and Ear Hospital, and as instructor of diseases of the throat, in the Post-Graduate Medical College. Dr. Moses D. Lederman, of 1029 Park Avenue, is also an assistant surgeon to the

Manhattan Eye and Ear Hospital, and instructor of diseases of the throat, in the New York Polyclinic School. In Brooklyn the Medical Department is represented by upwards of twenty graduates in active practice.

Dr. Henry La Motte, class of 1889, assistant surgeon on the flagship "Newark," U. S. N., is at present stationed at Rio Janeiro, Brazil.

Dr. John W. Williamson, of the class of 1835, is now in active practice, at the age of 83 years, and in the enjoyment of perfect health. He is living at Boydton, Mecklenburg, Virginia.

Necrology.

The death of Dr. Isaac N. Kerlin, at Elwyn, Delaware County, affects not only the Pennsylvania Training School for Feeble-minded Children, of which he was superintendent, but it affects a large number of professional and business friends as well. His sphere of usefulness was extensive, his devotion to his work unceasing, and his strength of purpose never failing. The results which he has attained within an institution which he has developed from a small beginning, its present commanding usefulness, will be his substantial and most enduring monument. Dr. Kerlin was born in Burlington, N. J., May 27, 1834. Upon entering the University, Dr. Joseph Parrish acted as his preceptor. He graduated from the Medical Department in 1856 and in 1864 he succceded Dr. Parrish as superintendent at Elwyn, which position he held at the time of his death. He gave the best years of his life to the improvement of the feeble-minded, and the results which he has attained mark a new era in the history of this branch of medical science. Dr. Kerlin died on Wednesday, October 25, in the 59th year of his age. His wife died some ten months ago, from cancer of the breast. Four boys survive him, of whom Isaac, aged 22, is studying medicine at the University of Pennsylvania.

Dr. John Dunbar Hylton, who graduated in 1866, also died on October 25, 1893, at Palmyra, N. J., in the 65th year of his age.

Dr. Lewis Jemison, of the class of 1858, died on October 27, 1893, at Anniston, Alabama, where he had resided for the last three years. Dr. Jemison took a collegiate degree at Princeton in 1853, and he formerly resided at Bordentown, N. J., where the interment took place, on Monday, October 30, 1893.

Address any communication for this department to Dr. Joseph P. Tunis, Secretary and Treasurer of the Alumni Society, 129 S 18th Street, Philadelphia, Penna.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D.,

Lumbricoid Worms in Young Children.

Miller (*Jahrbuch für Kinderheilkunde*, Vol. xxxvi, Part 3, 1893) reports a case of a child, 3 weeks old, who passed an ascaris under the following circumstances: The child was born July 10. On July 17 the cord separated, on the 18th inflammation of the umbilicus began, which terminated in a gangrene of the navel, with perforation of the small intestine, which was bound to the belly wall at that point. The child constantly thereafter passed the stool through the artificial anus. On August 4 a living female round worm was passed from this opening; it measured six inches in length. This is the only case in which so young a child has been known to pass a lumbricus. The infection in this case, the author thinks, probably took place through impure water used in the milk, or in washing the nipple. He does not consider that the worm had any causative effect in the perforation of the intestine.

A New Dilator for Stricture of Esophagus.

Schrieber (*Berliner klinische Wochenschrift*, August 7, 1893) thus describes a new esophageal dilator, presumably devised by himself. It consists of first a hollow elastic tube. On the distal end of this tube is the dilator proper, which is a conical gum tube 3 centimetres long and of 2.5 millimetres to 5 millimetres in diameter. This tube ends in a point 1 to 1.5 centimetres long and of a diameter of 2.5 metres. The gum tube is bound to the end of the hollow sound by means of a silk thread. On the distal end of the hollow sound is fixed a metal cap fitted with a water-tight cock and a plunger. Before the instrument is used the hollow sound is filled with water and the metal cap screwed fast. The whole instrument when ready for use is no larger than the smallest esophageal sound usually employed. The point of the gum tube acts as a director. The instrument is introduced in the usual manner and the dilator engaged in the stricture. The plunger is now forced down by means of a special syringe until the contents of the hollow sound are diminished one-half, one-fourth or three-fourths, and in this manner the gum tube on the end is exposed and the stricture stretched. The dilator is thus not only increased in diameter, but in length, and the pressure is brought to bear on the calibre of the stricture instead of on one end as done by the ordinary dilator.

Chlorate of Soda in Cancer of the Stomach.

Brissaud (*Revue de Therapeutic Médico-Chirurgicale*, September 15, 1893) is quoted from a paper read before the French Society for Advancement of Sciences as advising chlorate of soda in doses of half-an-ounce daily. This treatment is especially valuable in epithelioma which has not invaded other organs. All of the cases treated had besides the symptoms of cancer a well-defined tumor. The results of treatment were cessation of hematemesis, disappearance of the cachexia, disappearance of the tumor.

Irregularity of the Heart in Childhood.

Chaix (*Journal de Medecine et de Chirurgie*, September 10, 1893), in an essay of importance, calls attention to the well-known fact that irregularities in the action of the heart in children are very common, frequently being called forth by constipation, diarrhea, emotions, etc. It is especially liable to occur in hysteria and chorea. Though it is frequent in meningitis, a diagnosis cannot be made on that one point. He also describes a variety of arhythrm, in which the prognosis is very grave, in contrast to the good prognosis in the above cases. The so-called "*rhythme de déclanchement*" is characterized by the two sounds of the heart being very close together. The short silence can scarcely be perceived. That which is characteristic, however, is a sudden stop analogous to the sound produced when a spring is drawn to its fullest extent and suddenly released, only in this case there are two stops instead of one. Or it may be compared to a reduplication of the second sound, the first sound being one of the elements. The long silence persists with greater or less length, but is usually perceptible.

Papayotin and Carbolic Acid in Diphtheria.

Levy and Knopf (*Berliner klinische Wochenschrift*, No. 32, 1893) give the following experimental and clinical research, which appears valuable: They first took bouillon cultures of the diphtheria poison, prepared after the manner of Behring and Wernicke, and put them in the oven for four or eight weeks. One-half per cent. solution of carbolic acid was then added and the cultures remained absolutely sterile. They still contained the poison, however, as proven by the fact that one-half a cubic centimetre killed guinea-pigs in two days with typical symptoms of diphtheria. Papayotin was now added to the cultures and two cubic centimetres given to guinea-pigs. The animals were made very sick, but notwithstanding the huge dose they all recovered. They then prepared the following solution for use on patients:

℞	Papayotin (Gehe)	10
	Acid. carbol. pur.	5
	Aq. dist., q. s. ad	100

The idea of using the solution was that the carbolic solution would kill the bacillus in the membrane on the throat and the papayotin would lessen the virulency of the poison already developed. The throat was pencilled with the solution, for the first two hours, every ten minutes, and afterward every two hours night and day. Besides this treatment ice was applied to the neck and much wine given. The cases treated numbered fifty-one; thirty-six recovered and fifteen died, or a mortality of 29 per cent. Of these cases several died of intermittent affections not dependent upon the diphtheria. All the cases were severe. When the pencilling was discontinued the membrane always increased.

The Treatment of Whooping-cough.

Unruh (*Jahrbuch für Kinderheilkunde*, Vol. xxxvi, Parts 1 and 2, 1893) believes that the initial catarrh is the most important symptom of the disease to combat. If this is successfully done there is much less danger of fatal complications supervening. In young children, who may be unmanageable, he directs the inhalation of turpentine by means of a mask or cloth held before the face. In children who can be controlled, he advises the insufflation of quinine in powder form as of the very greatest value. He directs the use of one and a half grains of quinine once a day, and has not seen any intoxication from it, or tannic acid may be used where there is any objection to the quinine. He believes that morphia, chloral, and such drugs, given internally do more harm than good, while the bromides are practically useless. The only internal medication of much value is antipyrin. He gives one teaspoonful of a 3-per-cent. or 5-per-cent. solution every three hours. If the bronchial glands become involved, he uses a cold pack to the part, and the use of concentrated food. He has also seen good results from the inhalation of a 10-per-cent. carbolic acid spray. Fresh air he considers of the greatest importance, but believes we should not send children affected with whooping-cough to resorts where there are healthy children, for fear of infecting the latter.

Diet in Severe Cases of Diabetes.

Schmitz (*Deutsche medicinische Wochenschrift*, July 6, 1893) believes a diagnosis between the severe and light forms of diabetes may best be made by careful urinary analysis. In the severe forms, those which form their sugar from albuminous foods, the urine of early morning, several hours after a meal, contains the most sugar; while that during the day, shortly after meals, contains the least. In the light cases, those in which the sugar is formed from starch in the food, the morning urine contains little sugar, while the day urine, passed shortly after meals, contains the most sugar.

In light forms the anti-diabetic diet is followed by the rapid disappearance of sugar from the urine. The urine, in severe cases, generally contains an appreciable amount of acetone and diacetic acid. This is not present in the lighter forms. Patients with the severe form of the disease have an entirely different appearance from those suffering from the mild variety, and they always have the peculiar fetor of the breath. From these differences it is self-evident that the two forms are not due to the same pathological conditions, and demand different treatment. In the light forms an animal diet, with very slight amounts of carbohydrates, is the best; while the severe forms do very badly on such a diet. For breakfast he gives in the severe cases tea, coffee and cocoa. The cocoa is especially prepared by having as much of the starch taken from it as possible. Milk is used in the tea and cocoa. One and a half ounces of white bread are also allowed. Instead of the bread he gives sometimes an egg-biscuit, made of egg, oatmeal, milk and lard. This is taken at 8 o'clock. At 11 o'clock a glass of wine, with an ounce of bread and one or two sardines, is given. For dinner, at 1 o'clock, soup made from meat; fish, with potatoes; a small amount of meat; fresh vegetables. He prefers a potatoe-cake, cooked in fat, to the meat. At 4 o'clock a cup of tea, cocoa or coffee with one ounce of bread. For supper, soup, as at dinner. With every meal wine is given. The wine should be as free from sugar as is possible to get it.

A Food for Infants.

Eivlart (*New York Medical Journal*, September 16, 1893), after much experimentation, has evolved the following method for making a food containing about one-third of the solid contents in the form of maltose:

Materials: Wheat flour or barley meal, ten ounces (two tablespoonfuls heaped as high as possible); water, fifty-six ounces (three pints and a half); extract of malt, half a teaspoonful or small teaspoonful.

Process: With a scant quart of the water make the flour into gruel, boiling ten minutes in a double boiler. Take out the inner vessel and add the rest of the water cold, the malt extract being added to the last few ounces. Let it stand fifteen minutes. Put back the inner vessel and allow to boil fifteen minutes. Strain through a coffee-strainer of wire gauze.

This food has been largely used in the babies' ward of the Post-graduate Hospital of New York by Dr. Chapin, who, in the same journal, gives his results. The food was largely used as a diluent for milk, and was found much superior to simple barley-water or any other diluent used.

A Case of "Grippal" Meningitis.

Sevestre (*Revue Mensuelle des Maladies de l'Enfance*, July, 1893) reports a case which entered Trosseau Hospital during the epidemic of influenza in 1892. The child was 8 years old, and had been sick fifteen days. On entering the hospital he had well-marked symptoms of meningitis—to wit, "*attitude en chrin de fusil*," headache, meningeal cry, rigidity of the neck, *tache cerebral*, irregular pulse and respiration, and also constipation and retraction of the abdominal wall. The only point of doubt was the irregularity of the temperature, which was 98° in the morning and 101° in the evening. This difference of temperature gave a suspicion of influenza as the cause of the malady. On the third and fourth days the temperature remained the same, but the meningeal symptoms were all less marked. On the tenth day the temperature remained normal, the stiffness of the neck disappeared and the patient was apparently recovering. Suddenly on this day there was a rise of temperature with return of meningeal signs, which lasted for twenty-four hours. At the end of five days convalescence was established, and the child recovered with all its faculties. He concludes, first, that meningitis is a possible, rare localization of influenza; second, that "grippal" meningitis is curable.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Surgery of the Air Passages in Children.

Bernard Pitts, in *The Lancet* of July 22, 1893, discusses the relative merits of tracheotomy and intubation. He states that in 1890 of eleven cases of diphtheria treated at the Great Ormond St. Hospital by intubation, only one recovered.

During 1891 and 1892 no such cases were intubated; but of eleven lately performed, there were only three deaths. As a routine method, tracheotomy is preferred. Cases of a malignant type are unsuitable for intubation on account of the tendency of the larynx to become ulcerated, also if there is a suspicion that the exudation extends low down. He is unwilling to intubate in private, unless there is a physician in the house competent to deal with any emergency. Intubation in cases under two years of age is to be preferred, when the membrane does not extend below the larynx. It is most important that the surgeon should have had some previous experience. Consent is more easily obtained for intubation than tracheotomy. The author includes the remarks of Dr. Collier to the effect that intubation is not a suitable procedure when laryngeal diphtheria is accompanied with diphtheria of the pharynx or naso-pharynx. The air passing over the diseased surfaces is apt to produce a septic broncho-pneumonia. It also interferes with treatment of the naso-pharynx, and also with feeding. When the trachea is affected, inspiration is relieved, while expiration may be hindered, causing distension of the chest. Also, when membrane is expelled, the tube is apt to come out at the same time. Any surgeon who intubates must be prepared to do a tracheotomy at once, if necessary.

The Present Status of Thoracic Surgery.

Gaston, in the *Journal of the American Medical Association*, August 26, 1893, submits the following as his conclusions respecting thoracic surgery: (1) All penetrating wounds of the thorax may be closed hermetically, by suture or otherwise, after allowing the discharge of fluid blood from the opening. (2) Foreign bodies lodged in the bronchi may be removed by incision of the trachea at the lowest available point. (3) Experiments for reaching the bronchi through the chest wall afford little encouragement in undertaking operation upon the human subject. (4) Medication as a preventative and a curative agency in pleuritic effusion is worthy of trial, before having recourse to aspiration. (5) Aspiration is indicated when there are large serous accumulations in the chest, and likewise in pneumothorax, but cannot be relied on for the relief of purulent collections. (6) Partial resection of ribs is attended with better results in some cases of empyema than the complete removal of the segments of several ribs. (7) The excision of a small portion of one rib, with the introduction of drainage tubes, has been generally attended with good results. (8) Washing out the cavity of the chest is not requisite, except in contamination and decomposition of the contents. (9) The operation of thoracotomy for abscess and gangrene of the lung, should be accompanied with antiseptic applications and tamponage with gauze. (10) Tumors of the mediastinum may admit of inference, but further developments are requisite.

A Case of Calculous Pyelitis, with Complete Suppression of Urine for Seven Days; Relieved by Operation.

Cabot, in the *Boston Medical and Surgical Journal*, August 31, 1893, gives the details of a case of urinary suppression relieved by palpation of the kidney and ureter after the abdomen had been opened. He offers the following conclusions: (1) That in a calculous patient, or in a patient with a distinct attack of renal colic, the suppression of urine should be regarded as directly due to the stone, and that in the majority of cases both kidneys will be found to be disabled,

for the cessation of the function of a healthy kidney, due to the irritation of a stone in the opposite ureter, must be very rare. (2) These cases should be treated by operation as soon as it is evident that the function of the kidney has come to a standstill, as there is little chance of the stone being pushed along the ureter when the kidney is no longer excreting urine behind it. (3) In the absence of any evidence as to the location of the calculus, the first step in such an operation should be a median laparotomy, with the hope of discovering the whereabouts of the calculus in order to proceed intelligently for its removal. (4) If by this examination no calculus can be found, so that further operative procedure cannot be decided upon, a steady massage of the pelves of the kidneys, and of the ureter, from above downward, should be practised in the hope of dislodging or breaking up a small calculus if such exists.

The Operative Treatment of Hernia in Children, With a Report of Fifty-one Cases.

Coley, in the *Medical Record*, July 1, 1893, reports his cases of operation for hernia in children. He gives the following indications: (1) Cases of adherent omentum. (2) Cases complicated with reducible hydrocele. (3) Cases irriducible and strangulated. (4) Cases unable to obtain the care and attention requisite for successful mechanical treatment. (5) Cases when mechanical treatment has been faithfully tried for a number of years without benefit. Of 250 cases under the age of 14, there were but two deaths, 8-10 per cent. There were nineteen relapses, or 8.6 per cent. The author has operated in forty-six cases, forty-two being non-strangulated between the ages of 4 and 14 years. In all there was but one death, that of a strangulated hernia in a baby 8 weeks old. Thirty-two were operated on by Bassini's method, kangaroo tendon being used for the buried sutures. Only two cases suppurated, and in these the silk suture was used. After the operation the child is encased in a plaster-of-Paris dressing from the umbilicus to the foot. Only two relapses are recorded, one following a Czerny and the other a Bassini operation, when silk sutures were employed instead of the kangaroo tendon.

A Method of Reducing the Deformity and Retaining the Fragments in Position in Cases of Fracture.

In the *Boston Medical and Surgical Journal* of July 20, 1893, Monks describes a method devised by himself and his assistants, Messrs. Wynne and Duel, by means of which obstinate deformities in cases of fracture may be overcome. It is carried out as follows, the case reported being one of fracture of the middle of the radius, with anterior displacement of the proximal fragment: A turn of bandage was loosely placed about the arm at the seat of fracture, and its upper end held by an assistant vertically upward, the arm being horizontal. This served as a landmark to the fracture. With his other hand the assistant made extension by gently pulling on the hand of the patient. The hand and forearm were then wrapped in a layer of sheet wadding, and a light plaster-of-Paris bandage applied. While the plaster was still soft, pressure was made at the seat of fracture, with the thumbs and fingers, the forearm being kept slightly supinated. Under this pressure, which was very slowly and gently applied, the fragments which, up to this time, had been out of place, could be felt to slide back into proper position. The pressure was kept up until the plaster had hardened, when the digital depression was, of course, permanent. The suspensory bandage was then cut away, and the next day a fenestrum made at the seat of fracture. The result was, in all particulars, satisfactory.

Rectal Stricture of Puerperal Origin Relieved by Laparotomy.

In the *Medical Record* of August 26, 1893, Scott gives the details of a case of obstruction of the bowels, caused by an inflammatory exudate occurring after confinement. The abdomen was opened, and the uterus found displaced to the left and the rectum toward the right. The right broad ligament enveloped in inflammatory material, was found stretched across the rectum, occluding it. The right round ligament and broad ligament were cut between forceps well down into Douglas' pouch, and the constriction of the rectum thereby relieved, and the patient cured.

Primary Sarcoma of the Tonsil.

Roswell Park reports in the *Medical Record*, August 26, 1893, two cases of sarcoma of the tonsil on which he operated, and two others on which no operation was done. His method of operating is as follows: A long incision was made from the ear to the level of the hyoid bone. After the removal of some affected glands, an incision was made at right angles to the first nearby to the angle of the mouth; next a tracheotomy was performed, after which the facial artery and veins and the digastric, potato-pharyngeus, and part of the pterygoids and masseter muscles, but not the hypo-glossal nerve. The pharynx was then opened, and the tonsil and part of the soft palate and uvula removed. Two years and a half later the patient was still well. The second case was a worse one, and it was necessary to ligate the common carotid artery and jugular vein. This man lived four days, it being impossible to completely remove the tumor.

Fracture of the Patella Treated by Wiring.

Lucas-Championnière, in the *Journal de Médecine et de Chirurgie Pratiques*, April 10, 1893, p. 244, gives the histories of three cases of fracture of the patella treated by wiring. The author has had some forty cases, and the three reported were of peculiar interest. The first case, a man, aged 42 years, was operated on thirty days after the accident. Two and a half years after he broke his other patella, and it was operated on seventeen days later. The fragments were wired in both cases, and after the last the patient walked on the seventeenth day, and left the hospital on the twenty-second. The result was perfect. The second case was operated on the 12th of October by one of the internes, and on the 22d of December appeared with a new fracture; one wire was found to be untwisted and the other broken. The patella was found to be so friable that only one wire was passed through it, while the other was passed through the tissues around it. The patient was up fifteen days after the operation, and two months after the accident was walking without fatigue. The third case was that of an acrobat, aged 19 years. He was allowed to walk after the tenth day. At the end of two months he was again doing his acrobatic feats. In cases where it is impossible to make the fragments meet, two loops of wire are used to hold them as close as possible. The last case fractured his patella eleven months previously, and was treated by an apparatus. After being in bed three months, he got up and sustained another fracture. A fracture of the patella was found, and also a rupture of the tendo-patella. The joint was opened and the superior fragment fixed to the tuberosity of the tibia by two thick wires. The result was excellent. The operator uses wire one millimetre thick, and opens the joint well and moves it soon.

Cases of Removal of the Appendix Vermiformis Between Attacks of Relapsing Inflammation.

Cabot (*Boston Medical and Surgical Journal*, July 27, 1893) advocates operation in cases of relapsing appendicitis in which the attacks have been sufficiently severe to make it seem probable that an emergency operation may be required He thinks it wise to accept the lesser operation, and do it when the patient is comparatively well. Five cases are reported in detail, all of which made satisfactory recoveries. The author finds that he is becoming more inclined to immediate operation when the presence of a sharp attack of appendicular inflammation is established; but he still sees occasional cases in which the inflammation is of so mild a grade as to make it seem wise to wait the subsidence of the attack with the intention, if it is repeated, of operating in some interval of health. He suggests that it would be wise for general practitioners, in the presence of abdominal symptoms pointing to the possible necessity for surgical interference, to always apply antiseptic fomentations, so that when the surgeon is called, he shall find an aseptic field of operation. One case was seen of a man, who had had two mild attacks followed by a third severe one, and, nothwithstanding an operation was done as soon as he was seen at the end of the second day, death ensued.

Iliac Abscess Consecutive to Prostatic Disease.

Dr. Bezy, in *Le Mercredi Médical*, March 22, 1893, gives a clinical lecture on the relation of certain iliac abscesses to disease of the prostate gland. It has been claimed that abscesses of the iliac fossa have as their origin disease of the prostate, but the author holds that in most if not in all cases they are really caused by iliac adenitis, and have their starting point in the iliac fossa and not in the prostatic region. The following example is given: A man aged 67 years had calculus of the bladder, which was removed by crushing. Recovery was satisfactory. Three years later urinary troubles reappeared, and while the removal of a small calculus gave some relief still he had pain in the groin. Palpation of the iliac fossa revealed the presence of three or four hard, rounded, painful tumors. Rectal examination revealed a healthy state of the prostate gland and surrounding parts. The author regarded the glands as having been infected by means of the lymphatics, the infected material having been introduced by catheterization. The glands went on to suppuration and the abscess was opened by an incision parallel to Poupart's ligament. The abscess extended deep into the pelvis, and had not its mode of development from the inflamed iliac glands been observed it might have been regarded as originating from the prostate gland. The importance of recognizing the true origin of the trouble is evident, because it would certainly be wrong to attempt to empty the collection by an incision through the perineum into the prostatic region.

THERAPEUTICS.

UNDER THE CHARGE F '

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

The Treatment of Exophthalmic Goitre.

Rockwell (*Medical Record*, September 30, 1893) speaks of the treatment of exophthalmic goitre, based on forty-five consecutive cases. The surprising lack of unanimity of opinion in regard to the efficiency of medicinal treatment is due to the fact that, not only have those drugs that have proved beneficial in some cases failed to do good in others, but sometimes a drug that has in one case proved palliative has in another seemed to do harm. Iron, in the majority of cases, is fully indicated and is well borne, but occasionally it produces unpleasant symptoms even when anemia exists. The statement of Von Graefe, that iron is useless in the height of the malady, but that it does good when a certain amount of improvement has occurred, is an observation of value, and founded upon an extensive experience. The author rarely administers quinine, strychnine or arsenic, and believes that the iodides often do more harm than good. Belladonna is undoubtedly of value. Carbazotate of ammonia he has used in one case, but was obliged to discontinue it on account of gastric disturbance that it seemed to induce. Digitalis in combination with other remedies has frequently given him excellent results, yet like iron it may prove useless or harmful. When the heart is strong, as in sthenic cases, digitalis does harm, and veratrum viride may do good. Strophanthus has been highly recommended on theoretical grounds since it tends to contract the arterioles less than digitalis.

In combination with digitalis or strophanthus and iron, ergot and zinc bromide are of distinct value, and will, in the majority of cases, more nearly fulfill the indications than any other single remedy or combination of remedies.

He speaks highly of the use of general faradization in conjunction with internal remedies, and believes that the galvanic currents ordinarily employed—two or three milliampères—are far too weak to accomplish much good. Strong currents cannot, of course, be used with small electrodes applied in the ordinary way over the sympathetic and vagus in front of the neck. Here, although the current strength should be much higher than is recommended, it is rarely possible to exceed ten or fifteen milliampères. For the greater strength of currents large electrodes, preferably of sculptor's clay, should be applied both to the back of the neck (cilio spinal centre) and solar plexus. With electrodes in this position he has frequently used as high as sixty milliampères, and with results the most beneficial. He does not, however, always recommend such apparently heroic treatment. Every case is a law unto itself, and should be studied independently, with the exercise of judgment and common sense in its management. He attributes his good results to the fact that he has not confined his efforts to the use of drugs and local galvanism alone, but has employed general faradization to the whole body. While he considers electricity of rather more importance than any other remedy in the treatment of this disease, yet in many cases the most rigid and conscientious observance of certain fixed rules in regard to eating and drinking, and the avoidance of excesses of all kinds becomes essential.

Out of the forty-five cases there were but three that received no benefit whatever, and these were not even temporarily relieved. Twenty seven were benefited, some of them in a very great degree, others only slightly. Fourteen either fully or approximately recovered.

Salol-iodoform.

Regnié (*Gaz. des hôpit.*, September 19, 1893) has employed successfully a combination of salol and iodoform in the treatment of wounds. Salol has the property of combining with different bodies, like camphor, iodoform and aristol. These combinations can be obtained by heating the salol with one of the above substances to a temperature of 40° C. By this process a liquid is obtained which solidifies when cooled to 25° or 30° C. Wounds dressed with this compound heal by first intention, without suppuration. Sutures may be soaked in the liquid salol-iodoform, which solidifies on cooling, and forms an aseptic covering, thus protecting the wound and assuring rapid cicatrization.

Duboisin.

Rabow (*Therap. Monatshefte*, August, 1893) reviews the knowledge of the action of this drug as obtained from the leaves of *duboysia Hopwoodii*. The substance is probably not pure, but contains hyoscyamine and hyoscine, and, perhaps, other alkaloids. The author has used the sulphate as a sedative and narcotic in lunacy practice on about 400 occasions. The results have been favorable, and on the whole he prefers duboisin to hyoscine, though there are cases in which the latter is preferable. Long continued use of the drug may produce unpleasant symptoms. In the excited insane one-half to one milligramme invariably produces sleep, two milligrammes being seldom required. As the sleep is not refreshing, the drug is not indicated as an ordinary hypnotic. The unpleasant symptoms were anorexia, headache, giddiness, dilatation of the pupils and dryness of the throat. No beneficial effect on the mental malady was observable; but in periodic mania, the attacks were occasionally suppressed by the early use of duboisin. The author considers the drug valuable as a sedative in certain states of mental excitement, but not as a pure hypnotic, and recommends caution in its employment.

Calcium Chloride as a Hemostatic.

Saundby (*Birmingham Medical Review*, October, 1893) has employed this remedy in several forms of hemorrhages with distinct success. The first case was a middle-aged woman, with chronic jaundice of six months' duration, believed to be due to an impacted gall-stone. She suffered from free enterorrhagia, apparently the result of internal piles. After rectal injections of olive oil and the use of saline aperients had failed to check the bleeding, calcium chloride in small doses was administered every four hours with the satisfactory result that after five days the hemorrhage ceased, and did not return.

The second case was an elderly woman, suffering from purpura hemorrhagica, with free bleeding from the gums and slight hematuria. Ergot and gallic acid were of no use, and on the third day after admission, she was given small doses of calcium chloride every two hours. The bleeding ceased within five days, and the patient made a good recovery.

The third case was one of phthisical hemoptysis in which calcium chloride was used with other measures, but in spite of all treatment a profuse hemorrhage followed, which proved fatal. The autopsy revealed aneurism of the pulmonary artery, projecting into a cavity.

In these cases the dose of the drug never exceeded six grains, though in the case of purpura this quantity was given every two hours during the day for some days. Wright found that large doses—fifteen grains thrice daily for several days—caused a marked diminution in the coagulability of the blood.

Suppositories of Sodium Salicylate in Acute Articular Rheumatism.

Temanski (*Bulletin Méd. de Paris*, September 24, 1893) speaks highly of the administration of sodium salicylate by the rectum in acute rheumatism when for any reason the remedy cannot be given by the mouth. He adds fifteen grains of sodium salicylate to each suppository of cacao-butter, and directs that five or six of these shall be employed daily. It is claimed that administered in this fashion it is absorbed more quickly, and does not depress the system so much, especially the stomach, as when given in the usual way. He believes that this method is superior to the injections suggested by Erlanger.

Formaldehyde.

Blum (*Münch. Med. Wochen.*, No. 32, 1893) has found formaldehyde a useful antiseptic even in very dilute solutions. It is more useful in preventing putrefaction than in destroying bacteria, since the latter are only killed by a prolonged exposure to strong solutions of the drug. Gegner considers a 40-per-cent. solution a powerful bacterial poison; 1-30 of a drop in 2½ litres of water was sufficient to kill cholera bacilli after a twenty-four-hours' exposure. Owing to its irritating properties, it is not suitable for application to mucous surfaces, except in very dilute form, but on the skin a 2½-per-cent. solution may be employed. It has also been recommended as a local application in psoriasis, lupus, etc.

Rectal Injections of Carbonic Acid in Whooping-cough.

Bergeon (*Lyon Medical*, No. 26, 1893) states that he has employed the rectal injection of carbonic acid gas against whooping-cough since 1888. His first patient was his own son, aged 3 years, and the method of procedure was as follows: Immediately after a paroxysm of coughing, provided three hours have elapsed since the last meal, one to two litres of the gas, containing a few centigrammes of pyridine are injected into the rectum. The injections do not disturb the stomach, and the child can eat immediately afterward. When the paroxysms reappear the injections are renewed at intervals of four hours, and in severe cases are continued during the night. Under this treatment the disease usually yields at the end of a week. Girod also confirms the value of this remedy, and reports its successful use in his own case, as well as in a boy, aged 7, and a girl, aged 3 years.

The carbonic acid gas excites neither colic nor uneasiness, and the amelioration is so immediate that children offer no objection to its use.

OBSTETRICS.

UNDER THE CHARGE OF
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ASSISTED BY
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Concerning the Etiology and Treatment of Premature Labors and Abortions.

Stumpff (*Münchener medicinische Wochenschrift*, 1892, Nos. 43 and 44) quotes from Winckel's results in the conservative treatment of abortion and premature labor in the Münchener Frauen Klinik from 1885 to 1892.

In five and a half years there were treated 184 abortions, 115 cases of immature labor, and 147 cases of premature labor. The first two occurred in mothers from 26 to 30 years of age, and the last in mothers from 21 to 25 years old. The least possibility of the interruption of labor was before the 25th year, the greatest after the 40th year. In primiparæ the danger increased with the advance in the months of pregnancy; with multiparæ the converse. One-third of all interruptions of labor occurred in the third month; 50 per cent. of all aborted ova were expelled *in toto*. Etiologically, preceding interruptions as manual placental separation are of much importance. 41.7 per cent. occurred from uterine diseases; in 56.2 per cent. there were affections on the part of the mother; in 29.5 per cent. in the fetal membranes; and in 14 per cent. in the fetus.

From 169 abortions, 84 per cent. recovered by tamponade without any disaster; 4.1 per cent. had hemorrhages following; 1.2 per cent. suffered from ergotism; 10.7 per cent. with light infection. In cases in which there was retention of the membranes the results were not quite so good, hemorrhage following three times as often. The fear of retained decidua in abortion is carried too far.

The investigations of Puppe, arranged by Winter, have shown that a uterine mucosa perfectly renewed after an abortion is in poorer condition to play the rôle of a decidua of pregnancy than one which has performed this function entirely or partly before. Klein has found that the decidua vera after abortion remains entirely or partly in the uterus; that the decidual cells and glands and superficial epithelium degenerate and become absorbed, and are then replaced through connective tissue cells and cylinder epithelium, the deeper layers remaining. The vera is transformed into mucosa in four to six weeks. Endometritis post abortum is not the result of retention of decidua, but existed previously, and was the cause of the abortion. According to J. Veit, the endometritis remains in spite of curettage.

Bleeding placental pieces must be removed with the finger. Of these cases 66.7 per cent. recovered without incident; 13.3 per cent. suffered from hemorrhage; 20 per cent. from infection. Septic abortions are also to be removed by the finger, followed by the irrigation of the uterus by means of the uterine catheter, with a 3-per-cent. solution of carbolic acid. The iodoform gauze tampon is also recommended.

One hundred and fifteen of the cases were of immature labor; these were less favorable. Ninety-one recovered without incident; thirteen suffered from slight fever; five developed general sepsis; in one case there was purulent parametritis; one developed thrombosis of the veins; six died. Manual placental separation was performed nine times with perfect recovery; three times with subsequent fever, and three times with fatal sepsis.

Concerning Fetal Rachitis.

Schwarzwälder (*Zeitschrift für Geburtshilfe und Gynäkologie*, Band xxiv, Heft 1) considers the literature of the cases of fetal rachitis, but recognizes only such as true cases in which the microscope reveals rachitic changes. He describes two cases.

In both the skin was thickened, but not loosened. In one case there was a marked swelling of the epiphyses. Hydrocephalus was not present. Even the microscopical picture was not pronouncedly rachitic. The cartilaginous proliferating zone was exceptionally small. Schwarzwälder is inclined to regard his cases neither as true nor as healed fetal rachitis. In his first case, he regards it possible that the changes in the development of the bone were occasioned by the frequent winding of the umbilical cord around the extremities.

Method for the Rapid Termination of Labor.

Bossi (*Nouvelles Archives d'Obstetrique et de Gynécologie*, February, 1892) describes an instrument for the rapid dilatation of the cervix and production of labor. The instrument is a dilator having three branches which, four centimetres from the end, are bent bayonet-shape, to prevent too deep penetration. The instrument is introduced under the guidance of the fingers through the speculum, and the blades are then separated by means of a screw, a scale giving the degree of separation of the branches. In case of necessity the dilatation can be accomplished in a half hour. If there is no need for rapid delivery the instrument is allowed to remain in position with the blades slightly dilated until the pains are experienced. Bossi describes thirteen cases so treated.

A Further Report upon Two Hundred Labors Conducted Without Internal Disinfection.

Mermann (*Centralblatt für Gynäkologie*, No. 9, 1893) records 200 cases of labor in which no internal disinfection was used. Included among these cases were four in which the forceps was applied; one in which the skull was perforated, and the child extracted with the cranioclast; one of embryotomy for neglected transverse position; six of version, comprising placenta previa and other abnormalities; one of decomposed hydrocephalus treated by punctures; five in which the dead fetus was slightly decomposed; and three of breech presentation terminating normally. These with other abnormalities of labor made an interesting group of cases. None of the cases died, nor was there severe illness in any of them.

Mermann has now had 900 cases without a death from septic infection. Only one of his cases died, and that one from rupture of the uterus in placenta previa. Fourteen of these 900 cases showed a considerable rise of temperature.

He concludes that thorough, painstaking antisepsis applied to the external genitalia gives a mortality of nil, and that under normal circumstances not more than 1 per cent. of rise of temperature after labor can be referred to affections of the external parts; three-fourths of 1 per cent. being caused by ptomaine infection; one-fifth of 1 per cent. by pathogenic organisms already contained within the body; that when antisepsis is practiced rigidly, but internal examinations are made, 3 per cent. of all rises of temperatute result from small injuries received during the examination. Under these precautions infection of the external parts is practically nil.

Preliminary Vaginal Douche in Labor.

Eberhart, of Cologne (*Centralblatt für Gynäkologie*, No. 37, 1893), refers to the preliminary vaginal douche which he first employed while assistant in the clinic of Kaltenbach, and still practices. He uses it not only in the hospital, but in private practice as well, with the best results. Prior to operative measures he employs a 1 per cent. lysol solution for washing the vagina instead of the 1:3000 sublimate solution previously employed. The lysol solution he uses also for the uterine irrigation on account of its non-poisonous character.

The absolute indications for the vaginal douche Eberhart quotes as follows:

(1) In gonorrhea.

(2) In other copious discharges.

(3) When the vaginal secretions have a stinking odor.

(4) When there is an elevation of temperature.

(5) When an operative measure, as an intra-uterine one, shall be attempted.

Otherwise the douche may be omitted in private practice; in hospital, however, it should always be employed.

GYNECOLOGY

UNDER THE CHARGE OF

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ASSISTED BY

WILLIAM A. CAREY, M.D.

Ovariotomy for Osteomalacia.

Stern (*Deutsche Medizinal Zeitung*, No. 71, 1893) records two cases of osteomalacia treated as above. One case was 27 years and the other 33 years of age. Family histories negative. Both cases exhibited marked osteomalacia, and in each, symptoms had developed a short time after a pregnancy (ten days and three weeks respectively). At the time of operation the symptoms were emaciation and anemia, irregular and profuse menstruation, impossible locomotion, pain, thickening and deformity of many bones, particularly those of the pelvis. Medicinal and hygienic treatment had been tried without result. He removed enlarged but normal ovaries and tubes in each case. The pain rapidly disappeared, and after twenty-one days in bed, locomotion daily improved until at time of writing both patients were quite healthy. He says the characteristics of osteomalacia are as follows: The symptoms are most marked during menstruation; the operation is followed almost immediately by disappearance of symptoms; that the premonitory symptoms are very often, though not always, as has been reported in young girls, observed after a pregnancy. Stern believes the condition of osteomalacia is due to a pathological functional change in the ovaries; that this pathological functional change governs reflexly the vasomotor nerves of the bones, and thus brings about absorption of bone substance. After removal of the ovaries the vasomotor disturbance disappears and the patient gets well.

Ligation of the Vasa-uterinæ for Myoma of the Uterus.

Künstler (*Centralblatt für Gynakalogie*, No. 33, 1893) reports two cases in which cessation of hemorrhage and marked atrophy of the myoma followed ligation of the vasa-uterinæ. The first case was in a woman 47 years of age. A myoma as large as a fist grew partly from the posterior uterine wall and partly in the broad ligament. The uterus was fixed, the cavity measured two and two-fifth inches and the cervix reached nearly to the symphysis. He at first attempted vaginal hysterectomy. After opening Douglas' pouch, and having with difficulty ligated the vasa-uterinæ on both sides, he found it impossible to proceed further, as the tumor could not be removed through the vagina. The wound in Douglas' pouch was united, and also the vagino-uterine wall. After seven weeks the uterus had atrophied to almost the normal size, it was displaced to the left and retroverted, and the uterine sound showed the cavity had decreased to two and one-fifth inches. In the second case the woman was 25 years of age, and for six years had been troubled with prolonged irregular and profuse menstruation. The uterus was enlarged, the position normal, the cavity measured five inches. The tumor was intra-mural in the anterior uterine wall. The vasa-uterinæ were ligated. Seven weeks later the uterus was no longer enlarged, the cavity measuring two and two-fifth inches. Künstler believes that ligation of the vasa-uterinæ will produce atrophy, if the uterus be myomatous, hypertrophic, inflammatory or normal, and, therefore, also records the following cases: Woman 53 years of age, mother of eleven children. For the last four years she has been troubled with profuse, very irregular and long-continued menstruation. The uterus was normal in position, but concentrically hypertrophied; cavity four and four-fifth inches. He ligated the vasa-uterinæ, and five weeks afterward the uterus had returned to its normal size, the cavity measuring two and two-fifth inches. He believes this operation will give quite as good results as ovariotomy, and perhaps is indicated not only in myoma, but also in chronic metritis, concentric hypertrophy and chronic inflammatory or interstitial hypertrophy. He advises opening the vaginal vault, laying free the vasa-uterinæ, ligating, and closing the wound in the vagina.

The Technique of Vaginal Fixation of the Uterus After the Method of Mackenrodt.

Steinhüchel (*Centralblatt für Gynakologie*, No. 31, 1893) records four cases in which his modification in the technique of this operation was applied with positive results. He denounces the operation of Mackenrodt, saying he has observed two instances where the retroflexion returned with all the old symptoms, and he believes a great number terminate thus. The weak point in the Mackenrodt operation is the tendency of the uterus to retroflect, as the entire uterus retroverts, carrying with it the anterior vaginal wall, and thus it is important that the point of fixation should be as distant as possible from the area of the internal os at uterine pole of flexion. The uterus should, therefore, be sutured near the fundus and to the anterior vaginal wall, especially to the resisting portion surrounding the meatus urinarius. The special features of Steinhüchel's operation are as follows: The incision begins, two-fifths to three-fifths of an inch posterior to the urethral meatus, and extends to the vaginal cervix. A triangular flap is cut away from each side of the incision and the bladder dissected back in the usual manner. A markedly curved uterine sound, with a thick head, is used to bring the fundus well forward in position. With a strong curved needle and silk suture he fixes the uterus. The needle enters the mucous membrane three-fifths of an

inch posterior to the meatus urinarius and one-fifth of an inch from the edge of the wound, and is carried through the uterine substance, as near the fundus as possible, for a distance of two-fifths to three-fifths of an inch, and brought out on the opposite side through the resisting tissue near the meatus in the same relation as on entering. Two more sutures are inserted in the same manner, as near as possible to the first. He advises heavy silk for these sutures, and a continuous catgut suture to close the wound. For twenty-one days the patient remains in the horizontal position, and after four weeks the sutures are removed. If the uterus is then movable, and the vaginal wall lax, he advises an anterior colporrhaphy. This operation differs from that of Mackenrodt in that the incision is carried to within two-fifths to three-fifths of an inch of the urethral meatus, the first suture passes through the resisting tissue just above the urethral meatus, fixes the uterus near as possible to the fundus, closes the vesico-uterine peritoneal pocket and prevents retroflection or retroversion. All four cases have been under observation for some time with no return of the old condition. He believes the operation is indicated where long-continued massage or use of a pessary have given no result, and where there are no complications (old perimetritis, etc.).

The Abdominal Myoma Operation, with Particular Consideration of Hysterectomy for Myoma of the Uterus.

Lennander (*Centralblatt für Gynakologie*, No. 36, 1893) reports sixteen cases of hysterectomy for myoma, with one death, occurring in the last four years, in the surgical clinic at Upsala. Six of these cases were pedunculated, subserous myomata, the largest weighing 67⅔ pounds, and having extensive vascular adhesions to the great omentum. Two of these were noteworthy because they were intra-ligamentary and retro-peritoneal. The only case Lennander lost was a woman, 49 years of age, in whom the uterus was completely bound down with adhesions, the corpus uteri had undergone hemorrhagic change and the tubes were filled with blood. From the fundus grew a very large myoma. He extirpated myoma, uterus and tubes. The patient died nine days afterward of purulent peritonitis. The post-mortem revealed an old peri-typhlitic abscess. In one case where two-thirds of a large myoma had developed intra-ligamentary, he extirpated the entire uterus and drained the subperitoneal cavity through the vagina by means of a drainage tube and strips of gauze, and united the pelvic peritoneum with a continuous suture, thereby covering all ligatures in the broad ligament with peritoneum and completely closing the peritoneal cavity. About two months later Chrobak did the same operation. The tumor was developed intra-ligamentary in five cases. Ovariotomy had been performed in six cases without retarding the growths, and in one case a tumor weighing 58 pounds had developed seven years after removal of the ovaries. One case is interesting, because the operation was followed for nine months by metrorrhagia and very marked anemia. In two cases the myomata were associated with carcinoma. One case diagnosed by microscopic examination of the curetted tissue as adeno-carcinoma, proved to be only myoma. He advises abdominal hysterectomy though the tumor be small, as the operation is almost bloodless. When a large part of the pelvic peritoneum has been cut away, he says every part of the tumor cavity should be drained by means of a drainage tube and iodoform or sterilized gauze. He recommends the Trendelenburg position and catgut ligatures.

PATHOLOGY

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Simple Method of Cultivating the Gonococcus.

Abel (*Deutsche med. Wochenschrift*, No. 11, 1893) remarks that for the cultivation of the gonococcus, human blood-serum, secured from the placenta, is not always at hand. Good cultures can, however, be secured upon beef-peptone-agar-agar, the surface of which is thickly streaked with blood secured aseptically from a small puncture or incision of the finger. The gonococci grow as small circumscribed colonies, and are diagnosticated by their refusal to retain the stain by Gram's method, the short existence of the generation, and the impossibility of securing a growth upon a medium not containing human blood.

The Frequency of Tubercular Changes in the Human Corpse.

Schlenker (*Archiv. für Path. Anat. und für Phys. und für Klin. med.*, Vol. cxxxiv, Part 1, p. 145) studied 100 cadavers with the object of finding how many were affected with some one of the numerous forms of tuberculosis, and found the following:

The number in which tuberculosis could be demonstrated was sixty-six, of which

(*a*) Tuberculosis the principal disease and cause of death, thirty-five (53 per cent.);

(*b*) Tubercles present in considerable number, four (6 per cent.);

(*c*) Latent tubercles, twenty-seven (17 per cent.).

There were thirty-four cases entirely free of tuberculosis.

In thirty-six cases of latent tuberculosis of adults which he observed, the disease was localized as follows:

Bronchial glands	21 cases.
Mesenteric glands	3 "
Lungs	5 "
Intestine	2 "
Lung and bronchial glands	2 "
Lung, bronchial and cervical glands	1 "
Bronchial glands, axillary and nucal glands	1 "
All the glands	1 "

From these figures the writer concludes:

(1) Tuberculosis is much more widely distributed than is ordinarily supposed, and heals with relative frequency by assuming a latent course.

(2) That the difference in the figures of various authors is due to the difference in the districts and the kind of material on hand.

Leucocytes and the Coagulation of the Blood.

Lilienfeld (*Du Bois-Reymond's Archives f. Physiol.*, 1892, s. 167 u. 550). This observer, by precipitating a watery extract of leucocytes from the thymus, spleen, lymphatic glands and testicle, with acetic acid and alcohol, obtained a substance $C_{48.41}$ $H_{7.21}$ $N_{16.85}$ P_{243} $S_{0.70}$, soluble in water, in excess of the mineral acids, alkalies and neutral salts, in neutral or slightly alkaline solutions coagulates by heat, decomposes H_2O_2, and in combination with nuclein unites with *histon* to form *nucleohiston*. The histon in this combination was found by the observer to have the important property of maintaining the fluidity of the blood. In blood to which it is added the leucocytes retain their ameboid properties for twenty-four hours or more, and the blood placques are better preserved than by any other method known.

His experiments show that the maintenance of fluidity in the blood is one of the functions of the leucocytes, and not only this, but also that coagulation is also a function of the leucocytes, for he found that the A. Smith's reaction solution was coagulated into a dense cake in two hours by the action of nucleohiston. Both substances—that retarding and that producing coagulation—are compounded in the nucleohiston.

The Technique of Investigating Obermeier's Spirochæta.

Baschenow (*Bot. klinische Hospitalzeitg.*, 41, 1892) (Russian) recommends for the demonstration of Obermeier's spirillum, in cases where it occurs in small numbers, staining the prepared cover-glass with a dilute alcoholic solution of magdahlia dahlia. Fuchsine, methyl-blue and Bismark brown, are not to be recommended. Much importance attaches to the thorough cleaning of the cover-glasses, which he first places in HCl or H_2SO_4, then washes in water, after which they are placed in a mixture of alcohol and ether. When used they are wiped with a soft cloth and drawn several times through the flame.

The staining is done by adding to thirty centimetres of distilled water, one drop of the saturated alcoholic solution of magdahlia dahlia, and allowing the preparation to remain in this dilute dye for two to three hours. The process of staining can be accelerated by warming until vaporization begins. The stain is washed off in water, dried and mounted in xylol-balsam.

The Influence of Splenectomy on the Bactericidal Power of the Blood.

Montuori (*La riforma medica*, 17–18, February, 1893). The results of the experiments made by Montuori were as follows:

(1) In consequence of extirpation of the spleen, the anti-bacterial power of the blood is gradually lessened.

(2) In the course of two or three months the lost power gradually returns, and in four months is again normal.

(3) These activities occur more rapidly in young animals than in old, and more quickly in rabbits than in dogs.

(4) The germicidal substance is probably a ferment.

(5) Splenectomy not only destroys the power of the blood to kill bacteria, but also destroys its glodulicidal property.

(6) The same changes that were observed in the blood were observed in all the body juices.

Micro-organisms Found in Human Milk.

Ringle (*Münchener med. Wochenschrift*, 1893, No. 27, July 4, p. 513), dissatisfied with the results obtained by Escherich, Cohn, Neumann and Palleske, all of whom describe numerous pathogenic as well as non-pathogenic micro-organisms in human milk, investigated twelve healthy and thirteen diseased nursing women. Ringle thought that after the child had sucked for some time infection of the breast might occur through bacteria remaining in the larger ducts, and if, in securing the milk for experimentation he would express all of this and take the milk from the deep parts of the breast only, he would secure sterile material. The nipple and aureole were carefully cleaned with alcohol, 1–1000 bichloride of mercury, and again by alcohol. Small quantities of milk were secured from deep portions of the breast by a small pump terminating in a bottle, and after varying lengths of time small quantities were removed and cultures made. Out of the twenty-five experiments the milk was found to be sterile only three times. In seventeen cases the staphylococcus pyogenes aureus was found. Once the staphylococcus pyogenes aureus and albus were found in combination and twice the staphylococcus pyogenes aureus and streptococcus pyogenes were found together. It cannot be wondered at that abscess of the breast is of frequent occurrence when the pyogenic bacteria are always present in the milk. These researches also lessen the possibility which some suspected, that milk possessed an antibacteriacidal power.

Tuberculosis in the Dog.

Cadio (*Congress for the Discovery of Tuberculosis*, III sitting, Paris, July 27, August 2, 1893) observed forty cases of canine tuberculosis, in the great majority of which the disease was suspected because of the wasting and other clinical symptoms. Other cases were produced by inoculation with exudate from the pleura, pericardium and peritoneum, and in these the tuberculosis was proved, after death, by bacteriological investigation.

The lungs were affected in thirty-three cases; the pleura and bronchial and mediastinal glands in twenty-five; the pericardium in seven; the heart in three; the mesenteric glands in twenty-three; the peritoneum, mesentery and omentum in eleven; exudative pleuritis and ascites were found in nineteen; pericardial effusion was observed in six.

In two cases specific lesions were observed upon the respiratory mucous membrane. The mucous membrane of the right bronchus was thickened and covered with papillomatous new-formations. The tracheal mucous membrane showed numerous large circular eminences with central depressions. The glottis was tightly closed by a bilobed tumor of the vocal cord. In two cases large tuberculous masses were seen in the kidney, the cortex being almost entirely destroyed by them.

The hypertrophic prostate was infiltrated by tuberculous granulations, the gray fluid obtained from it containing numerous tubercle bacilli.

Canine tuberculosis is generally of human origin, and generally occurs through the respiratory system. In more than half of the cases the dog lived with a tuberculous master. The tubercular dog is also a danger to the people with whom it lives, especially the children.

THE FILARIA SANGUINIS HOMINIS.

MANSON (*The Lancet*, January 10, 1892) condemns the ordinary measures adopted for the cure of filaria-chyluria as being extremely irrational. According to Manson, the filaria bears the same relation to chyluria that the heart lesions produced in rheumatism bear to the disease, and the stricture of the urethra following gonorrhea bears to the gonorrhea, *i.e.*, they are the actual cause of the changes produced, though their continual presence is not necessary for their development. Chyluria is produced as follows: The fully developed filaria occupying the thoracic duct, produce ulcerative processes, or at least inflammatory processes, which lead to stenosis of the duct. In consequence of this the duct becomes much widened, the escape of the chyle or lymph into the vena cava is obstructed, and the lymph vessels suffer turgescence in consequence of the reversed pressure. Where the lymphatic vessels are poorly protected, as in the scrotum and bladder, they yield, and dilatation with its various consequences follows. It can be seen without further explanation that the administration of antiparasitics, etc., cannot relieve this condition. Sometimes spontaneous relief occurs.

MISCELLANEOUS.

CORRECTION.

Editors UNIVERSITY MEDICAL MAGAZINE:

DEAR SIRS:—I regret that owing to my absence from home my paper on "The Early Recognition of Tuberculosis" in the November issue of the MAGARINE was printed without proper correction of proof. Will you therefore do me the kindness to make the following corrections:

In foot note, page 101, read *Gloucester* in place of *Woodbury*. Page 104, the clause *the mode of entrance of the bacillus tuberculosis into the system* (second and third lines) should have been a part of the foot note. Page 105, seventh line from bottom, instead of *medium* read *nidus*.

Yours truly,

LAWRENCE F. FLICK.

736 Pine Street.

CORRESPONDENCE.

NEW YORK CITY, October 7, 1893.

DEAR PROFESSOR VAUGHAN:—I enclose you a copy of my article in the October number of the UNIVERSITY MEDICAL MAGAZINE on "Transmission of Immunity from Scarlet Fever by the Inoculation of Human Blood-serum." You will perceive that I make a practical

illustration of the nuclei theory which you have exposed before the Pan-American Medical Congress. I am quite convinced that the transmission which I obtained in my experiment is not only an apparent but real one. If true of scarlet fever, the principle holds good for yellow fever, tetanus, etc. I take the liberty to call your attention particularly to note 2, and the paragraph to which it refers; these, perhaps, will show quite explicitly the same lineaments which constitute your own nuclein theory. This is the theory upon which I have been working since I first started an investigation of Japanese immunity from scarlet fever. I had in mind yellow fever as well, as you will see by the reprint from the *Journal of the American Medical Association*, which I enclose.

Very sincerely yours,

ALBERT S. ASHMEAD.

To Professor Victor C. Vaughan, M.D., University of Michigan, Ann Arbor, Mich.

Michigan University, Office of Dean of the Medical Department.

ANN ARBOR, October 13, 1893.

Albert S. Ashmead, M.D., New York City.

DEAR DOCTOR:—Many thanks for the interesting reports which you have sent me. The results are very satisfactory, and are probably, as you say, founded upon the same theory as that given in my paper before the Pan-American Medical Congress.

Yours truly,

VICTOR C. VAUGHAN, Dean.

BOOK NOTICES.

A TEXT-BOOK OF OPHTHALMOLOGY. By WILLIAM F. NORRIS, A.M., M.D., Professor of Ophthalmology in the University of Pennsylvania, and CHARLES A. OLIVER, A.M., M.D., Surgeon in Wills Eye Hospital, Philadelphia. In one octavo volume of 641 pages, with 357 engravings and five colored plates. Philadelphia: Lea Bros. & Company, 1893.

In the preface of this book the authors state that the work is designed to convey a working knowledge of ophthalmology to students and practitioners, and it is a pleasure to estimate it by its own standard. The advanced requirements for graduation from our best medical

schools, and the increased time devoted to the acquirement of a working knowledge of special branches have created a demand for a systematic work on ophthalmology which shall thoroughly represent the present status of this important department of medicine. The present work can be said to have accomplished this purpose.

In Part First Dr. Charles A. Oliver has described the embryology, histology and gross anatomy of the eye and adjacent structures in a readable and lucid manner. The abstruse subject of optics has also been presented in a way to invite perusal, and in its mastery the student is materially aided by the introduction of a series of original and well-executed drawings. In directions given for the systematic study of the eye, the student will do well to notice each step and the reason for it, and the practitioner who has not accustomed himself to thorough and painstaking work will find much which he might follow with profit.

It will be noticed that although the description of the ophthalmometer and its workings has been given with greater fulness than in any other volume upon the same subject, yet its application in the estimation of ametropia has been so abbreviated that at first sight the details of the method do not appear to be satisfying to the reader, but the cause of this seeming discrepancy becomes immediately apparent when it is understood that the instrument is here regarded in the light of a clinical contrivance that is intended for the detection and accurate registry of the curves of the cornea alone; in fact, it serves as a keratometer.

In the chapter on the correction of errors of refraction and accommodation the author speaks a timely word for more accurate and strictly high-grade work, and urges the greater reward "from a quiet reputation of many years of but little error in refraction work" as compared with the apparent flash-like ability which results from quickly-obtained corrections which unfortunately must be frequently changed.

In Part Second Dr. William F. Norris describes the diseases of the eye and the various therapeutical procedures and operations devised for their relief. The author's vast experience and close observation are a sufficient guarantee of reliable guidance in this department of medicine.

In the chapter on cataract he has given an exceptional etiological classification of the diseases and a succinct account of its pathology. He has wisely omitted the discussion of obsolete operations and has limited himself to a series of clear and concise directions for performing the several recognized procedures, adding his own views upon the favorable features of each. It is to be regretted that whilst giving the statistics of the operations of others, he did not add his own results.

The chapter on glaucoma is one of the most interesting sections of the book. The numerous theories which have been suggested for this serious affection have been included, but most properly, no preference is mentioned for any particular one.

Throughout, the illustrations are particularly good and exceptionally well executed.

The book fully maintains its purpose of sequential development of the subject; and, in brief, must be considered a valuable addition to ophthalmic literature.

A Hand-book of Local Therapeutics. By Allen, Harte, Harlan and Van Harlingen. Edited by Harrison Allen, M.D. P. Blakiston, Son & Co.: Philadelphia.

The general practitioner has long felt the need of a work devoted exclusively to local treatment. In all the available text-books on therapeutics the local action of drugs is subordinated to their general actions, and when consulted for definite directions concerning topical medications they too often prove disappointing. The conception of devoting a book entirely to the use of drugs in general surgery, dermatology, otology, rhinology, laryngology, and ophthalmology, is a happy one, and the reader is particularly fortunate in having for his instructors such experienced specialists as the authors.

The drugs have been considered alphabetically. The plan of the United States Pharmacopœia having been followed in most instances—a classification that will materially facilitate reference. A commendable feature of the book, and one which contributes in no small degree to its worth, is the introduction of free criticism which the author's experiences prompts him to make concerning the value of this or that medication. All recognized methods of procedure are included, but in each case a preference is plainly stated. Too often text-books in therapy prove to be only collections of testimonials quoted from various sources, and fail to give what the reader most desires—the author's personal experience.

Many new drugs have been included, and their advantages and disadvantages compared with their numerous rivals. In addition to the usual index of drugs a copious index of diseases and their remedies has been added, to afford the reader a ready reference. We believe that the book will hold a unique position in therapeutic literature, and will be consulted time and time again by those who possess it for minutiæ of treatment, which cannot be obtained elsewhere.

Reactions: A Selection of Organic Chemical Preparations important to Pharmacy in regard to their behavior to commonly-used reagents. By F. A. Flückiger, Ph.D., M.D. Translated, revised and enlarged by J. B. Nagelvoort. Detroit: George S. Davis, 1893.

This volume will be of inestimable value to chemists and pharmacists. The large number of alkaloids and of synthetical compounds now used in medicine makes it most desirable that the standard of purity and quality should be maintained. The simple reactions as given by Professor Flückiger will enable the chemist to determine this point, and also to recognize the individual drug when this is in doubt.

The present volume is a revised and enlarged edition of the German text-book, to which Professor Flückiger has contributed some additional notes.

We note the use of the spelling adopted by the American Association for the Advancement of Science—*e. g.*, quinin instead of quinine, sulfate instead of sulphate, etc.

ANNUAL OF THE UNIVERSAL MEDICAL SCIENCES. Edited by CHARLES E. SAJOUS, M.D., and seventy associate editors. The F. A. Davis Company: Philadelphia, New York, Chicago and London, 1893.

The sixth annual series of this work has recently been issued, and will be welcomed by the large number of physicians who have been fortunate enough to secure the previous volumes. To those who are not familiar with the *Annual*, the present number will be even a stronger argument to subscribe than its predecessors. The editor is to be congratulated upon having secured the co-operation of a number of distinguished European associates in the preparation of the volume before us.

The *Annual* is now so well known that it seems almost unnecessary to say that its object is to supply the physician with a complete history of the contemporary medicine of the world. This enormous task has been rendered possible only by the editor having associated with him a large number of the foremost physicians of this country and Europe.

The work conforms in appearance and in scope with the previous editions. A number of colored plates are inserted to illustrate rare or otherwise important conditions.

While it is manifestly impossible for any record of medical literature to be complete, the *Annual* gives to the practitioner a very good general view of the various branches of medical science.

We take pleasure in commending the work to physicians generally, embodying as it does the advances in diagnosis and treatment made during the past year, and giving also an index to the literature of the same period.

THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONER'S INDEX. Edited by a Corps of Thirty-eight Department Editors, European and American. New York: E. B. Treat & Co., 1893.

The eleventh annual issue of this index to the progress of medical science fully maintains the reputation of the former volumes. The work is arranged under the following heads: Dictionary of New Remedies, Dictionary of New Treatment, Sanitary Science, Progress in Pharmacy, New Medical and Surgical Appliances and Books of the Year.

It is so manifestly impossible to keep abreast with the immense volume of medical literature that to have this epitomized by a corps of able specialists and presented in an acceptable form at a moderate price is to render a valuable service to the busy practitioner.

Besides presenting an abstract of current literature, several original articles are included in the work. Numerous illustrations are employed when they are considered useful, and a number of colored plates appear.

The book will be found invaluable in supplementing the various standard works which in the present time of rapid progress, even with frequent revisions, can scarcely keep up with the advances made.

A Manual of Medical Jurisprudence and Toxicology. By Henry C. Chapman, M.D., Professor of Institutes of Medicine and Medical Jurisprudence in the Jefferson Medical College. Philadelphia: W. B. Saunders, 1892.

This manual is based on the course of lectures delivered by the author on these subjects at the Jefferson Medical College. The work is intended for students and practitioners rather than those who devote particular attention to forensic medicine.

This is a much more important subject than the time alloted to it in the college curriculum would indicate. The hospital resident and the recent graduate in practice will very early feel the need of definite information in regard to the "signs of death" in doubtful cases, the laws relative to the coroner's office and the numerous causes of violent death. Dr. Chapman's experience as coroner's physician of Philadelphia has placed him in a position to speak with particular authority on these subjects.

The Disease of Inebriety from Alcohol, Opium and Other Narcotic Drugs: Its Etiology, Pathology, Treatment and Medico-Legal Relations. New York: E. B. Treat, 1893.

This work has been arranged and compiled by the American Association for the Study and Cure of Inebriety, of which Dr. T. D. Crothers is secretary. The title of the work is significant, for the Association considers inebriety a veritable disease. It is shown that this view is of very ancient origin. Heroditus is quoted as saying "that drunkeness showed that both the body and soul were sick." In modern times this teaching is quite generally accepted. We canno refrain, however, from calling attention to the fact that it is a preventable disease, at least, and one that the physician may frequently avert by timely advice.

The extent of inebriety causes one to wonder that a work devoted exclusively to this subject has not been published very much earlier.

Besides alcoholic inebriety are considered those forms due to opium, ether, cocaine, chloroform, coffee and tea, eau de cologne, arsenic and ginger, and the psychosis caused by nicotine.

Although there may be differences of opinion respecting certain questions concerning the diseases discussed in this work, their cure is a subject in which all are alike deeply interested. The book deserves the widest circulation.

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UNIVERSITY MEDICAL MAGAZINE

JANUARY, 1894.

THE GREAT MEDICAL ERROR OF THE DAY.

By William Goodell, M.D.,

Honorary Professor of Gynecology in the University of Pennsylvania.

In the treatment of the diseases of women at the present time, there seems to me to be a tendency to lay too much stress upon lesions of the reproductive organs. Too little heed is, therefore, given to the nerve-element of woman's diseases, and as a natural sequence, the surgical feelers and antennæ of the medical profession, always too keenly sensitive, vibrate vehemently at the approach of an ailing woman. This trend of the profession, to appeal to the knife as the great panacea for woman's diseases, is seen everywhere. It prevails alike in city, town, village and hamlet. It asserts itself in every medical discussion, and stands out in bold relief upon the pages of every medical journal. It has caused many needless sexual mutilations and unnecessary operations, and it is, in my opinion, the great medical error of the day.

It comes, not so much from the glamour surrounding surgery, nor from the greed of gold, but from errors of judgment, and from mistaken diagnosis. These arise from the fact that woman, through her sensitive and emotional organization, is a bundle of contradictions. More pitiful than man, and more long-suffering, her anger is more cruel, and her jealousy more relentless. Feebler than man, an appeal to her affection will make her surpass him in sheer muscular endurance. Who can nurse her kin so untiringly, and with so little rest, as even a frail woman can? What father can equal a mother in fondling and soothing a sick and fretful child through the weary night watches? What man can undergo the sheer fatigue, the strain and stress that a woman will for those she loves? Even in her pleasures, her physical

amusements, she will, through keen enjoyment, often outtire the strongest man. In one word she is a creature of impulse and of emotion. But all nerve-strains, whether arising from the emotions, from the affections, or from the passions, have their reactions, and very strange and very misleading reflexes come from the loss of brain-control over insubordinate lower nerve-centres. For what is hysteria but nerve misrule, and the panic of the brain at incompetent control. The secret and sanctity of woman's inner life lies in her affections, and what disturbs them disturbs the nerves, and through them their environment of flesh and blood. These unruly nerve lights flashing and fading at their own will, and without control, in the different organs of the body, the most careless observer may sometimes plainly see, for the clue is then as secure as the steps of a geometrical problem. But then again the symptoms are more frequently obscure. Often they are as misleading as the lapwing's flight. To construe such symptoms, to unfold their sense, and to paraphrase them, so as to gain a true conception of their character, often demands a deep acquaintance with human life, and a keen insight into the most secret springs of its action.

Again, what is very perplexing, uterine symptoms are by no means always present in cases of uterine disease; and, what is still more bewildering, when so-called uterine symptoms are then present, they need not necessarily come from the uterine disease. The nerves are mighty mimes, the greatest of mimics, and they cheat us by their realistic personations of organic disease, and especially by their life-like imitations of uterine disease. Hence it is that even seemingly urgent uterine symptoms may be merely nerve-counterfeits of uterine disease. In fact, the time has come when we must give up the belief, which with many amounts to a creed, that woman is woman because she has a womb, and that the womb is at the bottom of nearly every female ailment.

Nerve-strain, or nerve exhaustion, comes largely from the frets, the griefs, the jealousies, the worries, the bustles, the carks and cares of life. Yet, strangely enough, the most common symptoms of this form of nerve-disorder in women are the very ones which lay tradition and dogmatic empiricism attribute to ailments of the womb. They are, in the usual order of their frequency, *great weariness*, and more or less of *nervousness*, and of *wakefulness;* inability to walk any distance, and a bearing-down feeling; then headache, napeache and backache. Next come scant, or painful, or delayed, or suppressed menstruation; cold feet, and an irritable bladder; general spinal and pelvic soreness, and *pain in one ovary*, usually the left, or in both ovaries. The sense of exhaustion is a remarkable one; the woman is always tired; she spends the day tired, she goes to bed tired, and she wakes up tired;

often, indeed, more tired than when she fell asleep. She sighs a great deal, she has low spirits, and she often fancies that she will lose her mind. Her arms and legs become numb so frequently that she fears palsy or paralysis. Nor does the skin escape the general sympathy. It becomes dry, harsh and scurfy, and pigmentary deposits appear under the eyes, around the nipples, and on the chin and forehead. Blondes are likely to get a mottled complexion, and brunettes to be disfigured by brown patches, or by general bronzing. Sometimes the whole complexion changes to a darker hue, and an abnormal and a disfiguring growth of hair appears on the face. There are many other symptoms of nerve-strain, but since they are not so distinctly uterine in expression, and, therefore, not so misleading, I shall not enumerate them.

Now, let a nervous woman, with some of the foregoing symptoms, recount them to a female friend, and she will be told she has "womb-disease." Let her consult a physician, and he, especially if she has backache, bearing-down feelings, an irritable bladder, and pain in the ovaries, will assert the same thing, and will diligently hunt for some uterine lesion. If one be found, no matter how trifling, he will attach to it undue importance, and treat it heroically as the erring organ. If no visible or tangible disease of the sexual organs be discoverable, he will lay the blame on the invisible endometrium, or on the unseeable ovaries, and continue the local treatment. In any event, whatever the inlook or the outlook, a local treatment more or less severe, is bound to be the issue.

Yet, these very exacting symptoms may be due *wholly* to nerve-strain, or (what is synonymous) to loss of brain control over the lower nerve centres, and not to direct or to reflex action, from some supposed uterine disorder. Neither, for the matter of that, may it come from some real, tangible, and visible uterine lesion which positively exists. Thus it happens that a harmless anteflexion, a trifling leucorrhea, a slight displacement of the womb, a small tear of the cervix, an insignificant rent of the perineum, or, what is almost always present, an ovarian ache, each plays the part of the will-o'-the-wisp to allure the physician from the bottom factor. To these paltry lesions—because they are visible, palpable and ponderable, and because he has, by education and by tradition, a uterine bias—he attributes all his patient's troubles; whereas a greater and subtler force, the invisible, the impalpable and the imponderable nervous system, may be the sole delinquent. The sufferer may be a jilted maiden, a bereaved mother, a grieving widow, or a neglected wife, and all her uterine symptoms—yes, every one of them—may be the outcome of her sorrows, and not the outcome of her local lesions. She is suffering from a sore brain, and not from a sore womb.

Fortunately for my own reputation and for that of my medical brothers who have thus erred, this grave error of diagnosis is not without excuse. For, as has been shown, the symptoms of nerve-strain —the reflexes of grief, of love, of neglect, of remorse, of jealousy and of unrest—so closely simulate those of even coarse uterine lesions that the nerve mimicries very readily may be mistaken for the symptoms of actual organic disease. Nor, indeed, are they always distinguishable the one from the other, for the marvelous kinship between mind and matter is a tangled skein unraveled yet by dead-house or by laboratory.

Let me illustrate this: Some years ago a healthy lady, aged 23, was engaged to a gentleman whom she tenderly loved. The wedding day was named, the clergyman was notified and the invitations were sent out. Three days before the one fixed upon for the marriage there came a letter from the man breaking off the engagement. The blow to her love and to her pride was, of course, great. She secluded herself in her room, and in a few days took to her bed with many symptoms of nerve prostration, of which dysuria and an irritable bladder were the most prominent. For these vesical symptoms she was treated by the family physician with external and internal electricity and with repeated flushings out of the bladder. Getting no better, but steadily worse, the next year she fell into the hands of a specialist who diagnosticated anteflexion of the womb, cervical erosion and fissure at the neck of the bladder. He dilated the urethra, washed out the bladder and treated the womb *secundum artem*. Still remaining an invalid, she consulted a third physician six months later. He also dilated the urethra, examined the bladder with the endoscope, washed it out repeatedly, applied electricity to it by an internal electrode, and gave cold douches. No improvement following this treatment, she called in a fourth physician. He kept her several weeks under his care, dilated her urethra, and treated her mainly with electricity if I remember correctly, but of this I am not absolutely sure. At any rate, she was not made a whit better, and a fifth physician was summoned. He without success treated her for anteversion of the womb and rectal ulcer. She now saw her sixth physician. By this time her urethra had been dilated so frequently that, in the examination, his finger entered the meatus urinarius, and, not at first recognizing his mistake, he remarked upon the extreme narrowness of the vagina. He recommended the formation of a button-hole fistula in the urethra, but this advice was rejected. Four years after the beginning of her disorder she returned to the second physician whom she had previously consulted. After treating her heroically for some time without the slightest benefit, he proposed the excision of the bladder. This operation was refused, and she, one year later, drifted back to her sixth physician. He first made a button-

hole fistula in the urethra. This failing to do any good, an artificial vesico-vaginal fistula was next tried. No benefit accruing from this operation, her ovaries, as the last resort, were removed, but peritonitis set in and she died. Now, what is the true interpretation of this sad case? The terrible shock to her pride and to her affections shattered her nervous system, and she was suffering more from the reflexes of a sore brain than from a sore bladder or from sore ovaries.

One more example for illustrating the influence of the mind over the body: A lady, after receiving the sudden news of her sister's death, began at once to throw up her food. Despite all remedies prescribed by the family physician, the vomiting persisted so stubbornly that she lost flesh, became weak and menstrual disturbance set in. A consultant, recognizing the neurotic character of the disease, wished to treat it accordingly. Yet so impressed was she and her relatives by many so-called uterine symptoms, which they attributed to some disease of her reproductive organs, that they laughed at his diagnosis and dismissed him. Two specialists, therefore, were summoned separately, and each one independently of the other attributed the vomiting and her other symptoms to a tear of the neck of the womb, and advised an immediate operation. For this purpose she went to the private hospital of one of these gentlemen. Directly after her admission she was seized with such violent and uncontrollable vomiting that in a few days her life was in danger. First one eminent physician and then another were called in by the specialist, and the three were in constant attendance until, after a desperate illness, she became well enough only to be carried home. No operation whatever had been performed upon her cervix, for she had been too dangerously ill and was still too ill. She was now placed in the hands of her first consultant, who treated her nerves and her nerves only. Under this treatment she became well, wholly well, and has continued well ever since, although the cervical tear still exists. In one word, it was the old, old story of wounded nerves counterfeiting a wounded womb.

Strange as it may seem, the coccygeal joint is very liable to play the barometer to any kind of mental worry. The serious surgical blunder is, therefore, not infrequently made of extirpating for sheer hysterical coccygodynia this important bone, important from its muscular origins and insertions. I have known coccygodynia to attack a lady after the death of her mother. Every kind of treatment failed, but it was finally abruptly cured by her great resentment at the second marriage of her father.

The late Dr. Fordyce Barker told me of an analogous case caused by the sudden death of the gentleman to whom the lady was engaged. After consulting without benefit the best specialists at home and abroad,

she led a sofa-ridden life, and did not stir from her house. She obstinately objected to surgical intervention, and the case seemed a hopeless one; but she was permanently cured by a lawsuit following a bitter family quarrel, in which she took a very active part. I have not on my conscience the extirpation of a nervous coccyx, but this exemption is merely a piece of good luck, and not of good sense, as the following history will show: A highly intellectual lady, among many nervous symptoms, suffered much from her coccyx. This she attributed to injuries sustained while she was riding a bucking horse. She was the patient of an eminent neurologist, who had cured her of all her symptoms, but the coccygeal one. I was called in by him, and, after doing my best by topical applications, and by replacing a retroverted womb and dislocated ovaries, made up my mind that the trouble was a traumatic one needing snrgical relief. The day and the hour of the operation accordingly were fixed upon; but, before they were reached, the pain mysteriously left the coccyx, never to return. A dominant mental impression—the fear of the operation—exorcised the coccygeal demon.

Once I was asked by a medical friend to see an exceedingly bad and acute case of pruritus vulvæ; the very worst that ever came under my observation. The lady was tossing about in her bed in a state bordering on frenzy from the intense itching, which could be allayed only by cold starch poultices applied every few minutes. Very naturally attributing it to uterine disease, my friend had discovered a small but angry-looking tear in the cervix, exuding a viscous discharge, and I was called in to the case to decide the question of an operation. I, too, was at first led astray; but the suddenness of the seizure, its vehemence, and the lack of consistency in the behavior of the symptoms, put me on my guard, and we soon found out the cause to be an attack of jealousy. This was a stubborn case to manage, but she ultimately recovered under isolation, massage, and heroic doses of asafetida.

Twice I treated a highly intellectual lady for attacks of pruritus vulvæ, and of vaginismus. The itching was intolerable, and the sensitiveness of the genitalia so acute as to forbid every attempt at sexual intercourse. Each attack was brought on by mental overstrain, from exacting literary work, and much domestic unhappiness ensued. Several cases, I have personally known, of ladies who had for months been treated for supposed uterine or ovarian disease, when their whole and only trouble was remorse at having had illicit intercourse, or at having resorted to criminal abortion. I could spin out to an interminable length this list of cases illustrating the close and often very perplexing kinship between the brain and the reproductive organs, but time and space forbid, and these will suffice amply for my purpose.

For such cases as the foregoing ones moral therapeutics are needed, and we may here take a lesson from the ancients. They, recognizing the influence of the mind upon the body, successfully used incantations concurrently with medicines. Savages imitate them by their herb teas and sweat-baths, made mysterious by the pow-wows of the wizard and by the thaumaturgic pranks of the medicine-man. The incantations used by civilized nations at the present day—and I name them with all reverence—are alms, vows, spells, charms, pilgrimages, exorcisms, Christian science, the faith cure, the laying on of hands, and other like forms of moral therapeutics, which unquestionably have cured and will cure so long as they produce dominant impressions. The legitimate incantations of medical therapeutics are now pretty much limited to distractions, to diversions, to travel in foreign lands, to isolation, to hypnotism, to massage, to electricity, and above all to the personal magnetism of the physician, however exerted, for this is the kernel of the treatment and the greatest of all incantations.

Sometimes in these cases an operation acts the part of an incantation. The dread of the knife, and the shock of the operation, distract the mental attitude of morbid concentration ; while the enforced rest in bed gives a chance to the worn-out brain to regain strength, and to assert its supremacy over the mutinous lower nerve centres. This leads me to think that in a large majority of operations upon trifling tears of the cervix, and on incomplete lacerations of the perineum, the good which may accrue comes less from the repair of those organs, than from the mental distraction and the enforced rest. But, this kind of incantation—the surgical variety—does not always work well ; indeed, it often, very often, makes matters worse. One striking example was that of a lady, who saw her only child run over and beheaded by a locomotive. Her health began at once to fail, and she took to her back with the hackneyed symptoms of weariness, wakefulness, a bearing down, an irritable bladder, and many other canonical uterine reflexes. These were attributed by an excellent and a conscientious physician to a torn cervix, and to a torn perineum, which were accordingly repaired. But the added shock of the two operations made her very much worse. For these reasons, I must confess to becoming far less inclined than formerly to operate on trifling lesions of the reproductive organs, and especially on small tears of the perineum, the repair of which is painful, unnerving, and generally of doubtful expediency. I have become very skeptical of the influence of such lesions upon the general health, and have come to the belief that, even in bad cases, it is greatly overrated. In my experience the mistake usually made in these cases is that of attributing to the lacerations the mock uterine symptoms of nerve prostration. About this there can be no error, for

I have over and over again, without any surgical treatment whatever, cured of all their ailments patients, who had been sent to me for the very purpose of undergoing some operation on the womb, on the perineum, or even on the ovaries themselves.

Just as headache does not necessarily mean brain disease, so ovary-ache, groin-ache and back-ache do not necessarily mean ovarian disease. Nerve-strain and these aches are, it is true, correlatives, but the middle term which connects them is merely a disturbance in the circulation. Yet, time and again—and I say this deliberately—have ladies been sent to me to have their ovaries taken out, when the whole mischief had started from some mental worry. Their ovaries were sound, but their nerves were not, and no operation was needed for their recovery. The physician of the present day is too apt to jump from any distinctly female ache to an ovarian conclusion without the delay of any misgivings. The ache is in the back, then, he argues, it probably is ovarian; it is in the groin, then, of course, it is ovarian; it is in the head, but extremes meet, and surely it comes from the ovaries. I, indeed, have seen a painful nose and also a red one, attributed to the ovaries and treated canonically by the hot vaginal douche and uterine applications. From this widespread bias and pernicious haste the removal of the ovaries has degenerated into a busy industry by which, in city and in country, very many women have been and are being mutilated, both needlessly and on the slightest provocation.

So misleading, indeed, are the symptoms of a jaded brain or of other nerve-strain, under the uterine guise in which they often masquerade, that when a jilted girl, a bereaved mother, or a grieving wife, consults a physician, he, unless on his guard, will be more likely to minister to a womb diseased than to a mind diseased. Such cases, even when associated with actual uterine disease, are not bettered by a merely local treatment. Nor are medicines by themselves of much avail. What they need are the incantations of the rest cure, viz., massage, electricity and strict seclusion. Hope should be infused into every case, and above all there should be imported into it the personality of the physician. The riper my experience the more am I convinced that, in the treatment of woman's diseases, the possibility of a nerve-origin or of a nerve-complication should be the *fore*-thought and not the *hind*-thought of the physician.

TWO CASES OF CROUPOUS PNEUMONIA.[1]

By James Tyson, M.D.,

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Gentlemen: I desire in this, the concluding clinic of my course, to ask your attention to the consideration of two most interesting cases of pneumonia, cases presenting markedly different types of the disease, cases requiring widely different treatment.

Both men are colored. The first is 51 years of age, a bricklayer by occupation; his family history has no bearing whatever on his illness. As to his own previous history, in 1867 he had an attack of typhoid fever, from which he entirely recovered; in 1871 he had small-pox, after recovering from which, to use his own expression, he felt like a new man. As to the present sickness: For two weeks, before becoming decidedly ill, he had been suffering from a slight cold; on Monday, March 20th, in the evening, after having taken in the afternoon two baths, rendered necessary by his occupation, he was seized with a chill, and on Tuesday, feeling very badly, had to quit work. He continued, however, to sit around the house until Thursday, the 23d, when he said the "pain around his heart became so severe he could not stand it any longer;" so he walked to the hospital, and asked to be admitted. Each day since the Monday of his chill he says he has had a slight chilly feeling, up to the date of admission, Friday.

On admission, on the 24th of March, he was so weak and nervous after he had walked to the hospital it was impossible for him to carry a half glass of water to his mouth without spilling it. His pulse was so weak and rapid that it was almost impossible to count it; his respirations were 36; his temperature 101.2°; his expectoration was blood stained; there was dullness below the angle of the left scapula, with some crepitation on inspiration and there was blowing expiration; on the right there was also impairment of resonance, though not absolute dullness, as was found on the opposite side, but the same crepitation on inspiration was heard, and blowing expiration.

Here, apparently, was a case of adynamic pneumonia—the pulse was frequent, could scarcely be counted, there was extreme debility, and all the physical signs of pneumonia were present; and along with this a temperature of 102.2°. A pneumonia of the left side undoubtedly existed, and probably also of the right side in the right lower lobe.

He was placed at once on a stimulating treatment. Locally, a turpentine stupe and a cotton jacket were applied; he received from

[1] A clinical lecture delivered at the University Hospital, April 6, 1803.

the very beginning a milk diet, four ounces every two hours with a drachm of whiskey as often, very soon increased to half an ounce.

He was admitted on the 24th, with the history of having been sick at least one, and possibly three days. On the 27th, three days later, a crisis was reached at 6 P.M, when a decided drop in the temperature occurred. Before the fall it was 102.2°, precisely the same as on admission, higher than which it did not go more than 2–10. From this it dropped to normal and below—on the whole a rapid fall, and with a few vibrations only. A sub-normal temperature, following crises in pneumonia, is very frequent. This encouraged us very much to believe that the end had come favorably; and we did not pay very much attention to him until the 29th, when we made the following note: "While his pneumonia has passed away, his condition has been progressively adynamic." We were startled upon examining him to find that his pulse was scarcely appreciable, that he was quite cold, and there seemed to be a condition of very rapid decline from some cause or other. We proceeded at once to revew the restorative treatment, digitalis ten minims, and carbonate of ammonium ten grains each, every four hours, also full doses of quinine and strychnine, of the latter, 1-20 grain three times a day, and whiskey a half ounce every two hours. We watched him with great concern from day to day. On the next day there was no essential difference, but on April 1, three days after, the following note is made: "The active restorative and stimulating measures adopted on the 29th seem to have had a good effect, and he has revived in every respect." From that time on his improvement continued slowly, and as he improved we gradually discontinued the more active stimulating measures until yesterday when a physical examination on the respiratory sounds were found normal and convalescence established. His pulse when last noted was 68, his temperature precisely normal, his respirations 20.

This was a case of pneumonia proceeding to recovery by very simple constitutional treatment. To-day we examine the lungs and find that they are normal. You see a case successfully treated, at least getting well; under simple local measures, amounting almost to nothing, and a general restorative treatment; and if we were disposed to draw hasty conclusions, we might say that this is the correct treatment for pneumonia, and recommend that all cases should be so treated.

CASE II.—The next case is a much younger man, also colored, 20 years of age, a jockey, who was so ill when he came in that it was impossible to get either any family or personal history, and we proceeded at once to get the only history we could, that of his present illness. Our note is dated March 26th, eleven days ago. Eight days before that, that is, on the 18th of the month, he says he had to go to

bed because he was feeling so badly, having chills and fever, backache; two days ago a doctor pronounced his case one of typhoid fever; and on the morning of the next day he was admitted to the hospital. On admission he was found to have a dry cough, and complained of intense pain on the left side of the chest, in the neighborhood of the heart, which was the case in the first patient, on the same side. In this respect the conditions seemed to be most strikingly similar. Through all his delirium he kept complaining of the intense pain, radiating all through the left lung. He was further so tender that the pain was aggravated by percussion;[1] his temperature was 105.2°, his pulse 110, his respirations 40, the latter rising to 54 two hours after admission; he was expectorating a small amount of tenacious blood-stained mucus. Inspection noted rapid breathing, palpation recognized a rhonchus over the cardiac region, which on account of the rapid breathing so resembled pericardial friction it was thought possible that it might have been caused by it, but from the fact that a wheezing was heard in the left axilla corresponding to this rhonchus, and indeed over the whole chest anteriorly, it was decided to be the result of sonorous râles, and not a friction sound.

It is well to remember this point, which is a practical one, that rhonchi, with rapid breathing, may much resemble to the touch a pericardial friction. Upon percussion there was found to be impaired resonance over the whole left lung, posteriorly, and in the left axilla. Auscultation, anteriorly, recognized the wheezing already alluded to in the axilla and in front; posteriorly there was bronchial breathing. That was his condition on admission, or rather the next day after. At first he was ordered a turpentine stupe, then dry cupping, as it was evidently a more sthenic case than the other. We dry cupped and then poulticed. We watched him for another twenty-four or forty-eight hours, but there seemed to be very little change in his condition. We noted that his breathing was exceedingly rapid, and that his pulse kept full and strong; yet it did not occur to us that he demanded bleeding. On the 30th, however, four days after admission, I saw him again, and was very much struck by the extraordinary rapidity of the breathing, which, I think, was 72. I then made another physical examination, and found the other side was involved, in other words, that he had a double pneumonia. We then prescribed for him quinine, ten grains by suppository, digitalis in large doses, and strychnine hypodermically. I left the ward, but the man's rapid breathing haunted me. I returned to the ward and bled him. He had a good strong pulse, and it seemed to me that he could not be hurt by the bleeding. More

[1] This acute pain was probably due to an intercurrent pleurisy the physical signs of which were obscured by the other physical signs present.

than a pint, nearly twenty ounces, of blood were taken from his arm. When we began to bleed his breathing was 72, and at the end it was 64. His pulse at first did not seem to be materially affected, and I was a little sorry I had not bled more, for in these cases you should bleed until you get an effect on the pulse. So I left him. On the next day, the 31st, no note was made, but on April 1 we made the following note: "At 4 P.M., yesterday, that is twenty-four hours after the bleeding, there seemed to occur a crisis, either a pseudo- or actual crisis, the temperature at that hour being 104.4, and rapidly falling to 101.8, reached on the morning of April 1." At the same time the respirations were 57 and the pulse 100, while the previous day the breathing had reached 80 per minute—I don't think I ever saw more rapid breathing—and his temperature once 105.2, which is a very high temperature. On April 2 there is this note: "The pseudo crisis referred to was followed by a rise of temperature, reaching 104 at 2 P.M., April 1, which was also the temperature at 8 P.M. of the same day. At that time he was sponged, his temperature being 104.4, and at that moment his temperature began again to fall, and went way down below normal by the next (*i. e.* this) morning." A true crisis, showing what I was afraid to call a true crisis was really pseudo, and the true crisis started in 8 P.M. Saturday. I simply note the sponging in passing, because I don't think it had anything to do whatever with the drop, I believe that it is simply a coincidence. I have never seen sponging produce such an effect as that. From that time he has gradually improved, and to-day he is convalescent. The lungs have not cleared up as the other man's have by any means, but they are clearing. There is some sub-crepitation; his temperature has since continued normal, and so has the pulse, and the breathing is 22.

Here, then, are two very different types of cases, and I believe the treatment adopted for each was the proper one, and we may conclude with some reason, that it was effective in bringing about the improved condition.

I have no doubt whatever as to the propriety of bleeding in certain cases of pneumonia; and, I have no doubt but that the proper time to bleed, in the vast majority of cases, is in the beginning of the illness; I am not so certain that it is easy to decide whether to bleed or not in many cases. In the first case it was perfectly clear to me that the man should not have been bled. In the second case, if my mind had been a little more on bleeding, I would have done it in the beginning, but while he had a high temperature, I was not struck with the necessity of bleeding at that time. A very little later, however, later than it is usual to bleed, it seemed to me proper to do it. At this time the involvement of the second lung was recognized, while

the continued high temperature, frequent pulse, and more particularly frequent breathing, determined me to do it. I think it is the frequent breathing next to the character of the pulse, or sometimes even the first which should determine the taking of blood; and I would prefer even to run a little risk, if the pulse rather contra-indicated it, should the patient breathe as rapidly as this. No symptom, as a rule, is more promptly relieved by a bleeding in pneumonia than pain. I think fewer cases can be hurt by bleeding than we are led to suppose; and being imbued with the idea that the advantage of bleeding is in the beginning, this man having been ill eight days, I was thrown off the track. It seemed to me that the time had passed for bleeding, and yet the time from one point of view had not come. Whether or not if we had bled at first the other lung would have become involved, I cannot say. But here are two cases requiring different treatment, each proper for the individual case.

Pneumonia has come to be a very serious disease, and I dread a case of it very much; and it seems to me that it has grown in seriousness since I have been in practice, tweny-five years ago, as in my earlier practice more cases seemed to get well than now. One of my medical friends in the country told me a few years ago that we, in the city, have no business to lose a case of pneumonia, and that if we bled them all they would get well. I think it is a fact, probably, that we bleed too little, and that if we bled a little more we would soon become educated to know better when to bleed. The hesitation which comes in these matters largely depends on the infrequency with which we practice it. The more we do a thing the better acquainted we become with it, and the more we are ready to do it. Bear in mind that a small bleeding cannot hurt.

TETANY.

By M. Howard Fussell, M.D.,
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Steinheim[1] describes three cases of contraction of the upper extremities, which were doubtless examples of the disease since called tetany. He considered the cases examples of acute rheumatism of the spinal cord. In this article he hopelessly confounds the condition with what is probably disseminated sclerosis. Dance[2] gives the his-

[1] Litterarische Annalen der gesammten Heilkunde, Vol. xiii, 1830.
[2] Archives général de Medicine, June, 1831.

tories of four cases of the disease under the name of intermittent tetanus. He is not fully decided as to the nature of the disease, but is inclined to the belief that it is a form of tetanus. All observers since Dance give that writer credit for the first systematic description of the disease. The name tetanie, which it still bears, was suggested by Corvisart several years later.

For many years almost all the observations were made in France, only an occasional article appearing in the German journals. In 1870 Moxon wrote an article in the Guy's Hospital reports which was certainly among the first, if not the very first, notice of the disease in the English journals, his observations in part being made upon children. Since that time innumerable articles upon the subject of tetany have appeared, but mainly in the French and German journals. Only a very few observations have been made by American physicians, doubtless because of the extreme rarity of the disease in this country. Dance described the disease most accurately, and a perusal of his article will convince one who has seen anything of tetany of the carefulness of his observations.

Osler's description of the disease is as follows: The fingers are bent at the metacarpo-phalangeal joint, extended at the terminal joints, pressed close together and the thumb is contracted into the palm of the hand. The wrist is flexed, the elbows are bent and the arms are folded over the chest. In the lower limbs the feet are extended and the toes adducted. The muscles of the face and neck are less commonly involved, but in severe cases there may be trismus and the angles of the mouth are drawn out. The spasms are usually paroxysmal. In severe paroxysms there may be involvement of the muscles of the back and of the thorax. . . . . The irritability of the nerves is enormously increased, both during the period of tetany and afterward.

Trosseau, that great teacher and acute observer, noticed a fact overlooked before and which has stood the test of time since; namely, that pressure upon the great vessels and nerves of a limb will precipitate a spasm in the member manipulated. This has since been known as Trosseau's sign.

Chowstek[1] noticed that a sharp blow with a hard instrument on the end of the finger over the facial nerve will cause a spasm of the muscles on that side of the face.

Loös,[2] in an article on the relation of *Laryngismus stridulus*, declares that the latter is the most important symptom of tetany. He comes to the following conclusions:

(1) Tetany is a well-characterized disease of early childhood.

[1] Weiner medicinische Presse, 1878, N. 26.

[2] Deutsches Archives für klinische Medicin, Vol. L.

(2) It begins relatively seldom with spastic contractures of the upper and lower extremities.

(3) It shows itself in the beginning most frequently by spasm of the layrnx (laryngismus stridulus).

(4) It is due to the excitability of the peripheral nerves.

(5) Its cause is not known; there is no pathological anatomy.

Karrowitz[1] believes tetany is a sign of rickets; is curable by phosphorus, and calls especial attention to laryngeal spasm as one of the most important signs of tetany.

The case which follows, and which was under observation at the time of the appearance of the article by Loös, was so rare, and substantiates so many of the points made by that author, that I have thought it well worth reporting. The following is the history:

Margaret ——, aged 5 years. Parents healthy. Grandparents on both sides living and well. All her brothers and sisters in good health, none dead.

She was always well, except for occasional attacks of indigestion, until March, 1889. While enjoying her usual good health, she suddenly fell down upon being placed upon the floor from her mother's lap, where she had been sitting. This inability to stand continued, and was due to what the child called a "wrench," meaning pain in the calves of her legs when she attempted to use them, accompanied by a forcible extension of the feet. In a week the parents noticed the thumbs were drawn into the palms and the fingers flexed over them. The thumbs were not rigid, and could be extended by the mother without giving pain to the child, though each attack of contracture was accompanied by severe pain. In the beginning of the attack the child made a peculiar sound on swallowing, much like the noise made by a horse in drinking. In the midst of this attack of contracture of the hands and feet, there was a sudden severe paroxysm of stridulus breathing, amounting to a typical attack of laryngismus stridulus. For a few days the contractures, fretfulness, pain and laryngismus stridulus would be severe, but would gradually disappear to suddenly reappear in a few days, almost always beginning with stridulous breathing early in the morning.

The writer saw the child in the midst of one of the severe attacks with her attending physician, Dr. de Lannoy, of Chester, Pa. The patient was peevish, on the least excitement would have stridulous breathing, but could talk perfectly well. The attacks of croup would be but momentary—three or four harsh, difficult inspirations. The head was thrown back, the forearms flexed, the thumbs in the palms with

[1] Wiener medicinische Wochenschrift, No. 17, 1893.

the fingers flexed over them. The feet were extended with the toes flexed. The child cried if it was attempted to put her on the floor, and at once all the contractures became more violent. If the little patient was talked to, and her attention diverted to some pleasing object, there was almost complete disappearance of the contractures. They would immediately reappear, however, upon the least exertion. She was put upon full doses of bromides and arsenic, with the effect of the entire disappearance of the contractures. She became thin and weak, however, but was taken to the country and rapidly improved, being in all respects well. Suddenly, in July, 1889, while playing about, she was attacked with a typical epileptic seizure without an aura. She fell unconscious, frothed at the mouth, and had a general clonic convulsion. Six convulsions followed in a period of six weeks. She was put upon homeopathic treatment, and the seizures disappeared until November, 1889, and the general health was excellent.

In November of this year there was a sudden attack of laryngismus, unaccompanied by contractures of the extremities, and followed in two weeks by an epileptic seizure. She then had a severe cold, and all the symptoms which were present in the spring reappeared with the addition of frequently repeated epileptic seizures, some of the latter appearing at night.

In the attacks of tetany the eyes would frequently become crossed and she would complain of seeing double. At this time I had an opportunity of closely observing the child in my own house. In appearance she was entirely well, being large and well-formed, the head was normal in shape, there was no enlargement of the epiphyses of the bones, and no other signs of rickets. The lungs and heart were normal, pupillary reflexes normal, and the pupils equal. The patellar reflexes could not be developed. Sharp blows over the facial nerve, however, would bring on an instantaneous contracture of that side of the face. Trosseau's sign of contractures of the extremities, being caused by forcible pressure on the great vessels, could not be developed. The eye grounds were normal; there was no abnormality of the urine. The child would be playing about, would suddenly stop, complain of pain in her hands; there would be a contracture of the thumbs or fingers, lasting for a few minutes, or an attack of strabismus or laryngismus stridulus. In a few minutes she would be well again and go about her play. In the night she would frequently be awakened by severe attacks of laryngismus stridulus. After November there were no more epileptic seizures until the next spring, and the tetany also disappeared until that time. In the spring there was another attack similar to that of March, 1889, but accompanied by epileptic seizures. The child developed mentally as well as physically, though each spring

and fall she had an attack of tetany, each attack, however, being less severe. If any acute disease occurred, the sufferer always had more or less contracture of the extremities whether the acute disease occurred during a regular attack of tetany or not. In September, 1893, while at school and apparently well, there was an epileptic seizure unaccompanied by any of the symptoms of tetany. In October, 1893, she was seized with what was apparently a mild attack of diphtheria, and almost at once had laryngeal symptoms. I was sent for in haste, found her with a good full pulse, but marked stridulous breathing. The inspirations were long drawn, harsh and difficult. *The voice was not altered* in the slightest degree. She could make a high note as well as a low note, and there was no pain manifested when she spoke. There was no retraction of the epigastrium nor depression above the sternum. I advised against operation, believing the symptoms due to laryngismus stridulus and expecting them to pass off in a short time. The next morning there was less stridor and the patient rested well and seemed improved in every respect. Dr. de Lannoy was called the next day and found the patient suffering from urgent dyspnea, the respirations being rapid and shallow. The pulse was scarcely perceptible, and the child was covered with a cold sweat. There was dulness over the base of the right lung. I saw her in the evening and much in the same condition, with dulness over whole right base and harsh breathing. The voice still remained good, though there was some stridor.

The patient died the next morning. Post-mortem twenty-two hours after death. The brain and cord were not examined. The mucous membrane of the larynx was much congested and the seat of a slight exudation, though there was no occlusion whatever. The mucous membrane of the trachea was also congested, and there was a general bronchitis. The whole lower lobe of the right lung was atelectatic, completely collapsed and dripped blood on being cut through. The immediate cause of death was atelectasis due to functional stenosis of the larynx.

This case, while not unique, is remarkable in showing in the same individual a typical case of tetany and of epilepsy. The epileptic seizures were usually preceded by an attack of tetany, though the first and last convulsions occurred when the child was free from tetany. It would seem that the two diseases, certainly in this patient, were simply variations of the same condition. It is a thought to be further elucidated whether or not they are identical.

So far as I can find, all writers make laryngismus stridulus and tetany two separate diseases, though many mention the occurrence of carpo-pedal spasms, indeed, general convulsions, as frequently recurring in spasms of the larynx. I believe Loös is the first observer

who has noticed the close connection between these two sets of symptoms. His article, which is quite lengthy, is full of instances where typical attacks of tetany were accompanied by spasm of the larynx, and usually began with that symptom. It does not seem to have occurred to the writers of text-books that the two so-called diseases were possibly manifestations of the same condition. Loös' article would appear to prove that in very many instances, at least, the spasm of the larynx and the contractions of the extremities are certainly symptoms of undue excitability of the peripheral nerves. Hereafter it seems that there will in all probability be a merging of the two descriptions under the one heading of tetany. This, of course, will not be done without very careful research. Loös does not make a positive claim that all cases of laryngismus stridulus are tetany, though it will appear to the writer as highly probable. The solution of this question will doubtless come from observation of cases in Europe. The disease is so extremely rare in this country that the necessary solution will scarcely be made here.

The case given here upholds the views of Loös so far as one case can do so. There is no possible doubt that the laryngeal spasm in this case was very usually the forerunner of an attack of tetany. The post-mortem, of course, shows nothing in regard to the pathology of tetany. It was made under circumstances which would not admit of a careful examination of the nervous system, and was done solely with the view to determine whether or not the child died of the spasm of the larynx or of a membranous laryngitis. The former proved to be the case. As Loös states in his article, there is no pathological anatomy of the disease; the various autopsies that have been made throw no light on its causation.

To conclude: The case observed was an example of tetany and epilepsy in the same individual.

Laryngismus stridulus was a prominent symptom in the attacks of tetany.

The child *was not rachitic.*

The tetany occurred in the spring and fall, and disappeared in summer and winter.

The causation in this case appeared frequently to be disturbances of digestion.

And finally, tetany and laryngismus stridulus would appear to be identical conditions, and not distinct diseases.

GONORRHEAL OPHTHALMIA.

By James Wallace, M.D.,

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This fierce outburst of inflammation, which runs its course quickly, and too often disastrously, derives its origin from specifically diseased genitals. Between the afflicted urinary apparatus, or more properly speaking, procreative organs, and the finger which conveys the virus into the conjunctival sac, sometimes there are many intermediate agents. It behooves us here, as earnest expositors of the truth, and custodians of a delicate organ to enunciate clearly and forcibly that this disease, as well as many others likewise contagious, is transmitted by the common practice of rubbing the eyes with the fingers in obedience to the natural desire to soothe the itching of an irritated organ. All cases of gonorrheal ophthalmia do not necessarily have diseased genitals; many means of communication exist, such as currency, clasping hands of acquaintances, door-knobs, handles of many instruments, washing linen that is infected, etc. The pus or lymph from an individual affected with gonorrhea has been known in my experience to affect wife, newlyborn baby and finally destroy the eye of a 16-year-old daughter. If it could be generally adopted as a feature of personal etiquette that the eyes were not to be rubbed under any circumstances with the bare fingers, granular lids, gonorrheal ophthalmia, and contagious catarrhal diseases due to fungi would be so notably reduced that a large series of the cases that now swell up hospital records would be enabled to ply their occupations without interruption, and a diminution in the number of inmates of the blind asylums and almshouses would undoubtedly ensue.

The essential nature of the disease is unknown, whether we regard it physically or metaphysically. A plant never produces the soil on which it grows. Neither does the gonococcus produce the pus which it feeds upon, consumes, and together with which it is likewise devoured in turn by ravenous leucocytes which hurry it out by the nearest egress. The fastidious nature of the gonococcus, which refuses to be cultivated in anything but blood serum under special precautions, and then only maintains a brief and uncertain existence, is utterly unlike the rank and rugged originator of clap, which preserves its potency in stale urine, vaginal mucus and other equally undesirable environments, and supports a colony of gonococci that would make a

bacteriologist envious even boiling with ether does not destroy its virulence. The gonococcus flourishes in gonorrheal pus, but not in anything else. By no logical process can any conclusion be reached from these premises other than that the pus is the food of the gonococcus just as the carcass is the food of the maggot. The maggot always finds it, as the eel always finds the sour paste. Gonorrheal ophthalmia terminates with or without treatment after a period of, say, six to eight weeks. If blood serum were the food of the gonococcus the growth of this organism would not terminate until the last drop of serum had been consumed. The disease of the eye or of the genitals would, therefore, last until one of two things took place, viz., either every gonococcus would be destroyed, or all the blood serum be consumed. The first is impossible; the second does not take place, and yet the disease is limited. Reasoning by analogy lightens considerably the burden of mental comprehension; through its aid we attain at a bound the dizzy heights of new and wonderful theories. In such lofty and far-reaching flights we must ever ponder the possibility and probability of a deviation from that straight course whose integral parts are stubborn facts. When a true position has been won in the forefront of science, the same rigid facts will be found all in line marking unmistakably the true route from cause to effect. In the cycle of organic forms we find the decaying creature of higher type assailed by lower forms, which either devour it or produce chemical changes in its substances which bring about ultimately inert inorganic compounds, to be again elaborated by higher forms. The parasite tarries with its host only so long as there is something to be obtained. After the sugar has all been split up there is no further activity of the yeast plant in the solution. After the gonorrheal pus has been exhausted, the gonococcus disappears. If the disease is caused by the gonococcus, instead of being modified by it, then the stray gonococci which have been found in granular ophthalmia contracted from chronic gleet possess a dual rôle. The introduction by De Wecker, in 1882, of the seeds of the abrus precatorius and his utilization of its remarkable property of causing purulent ophthalmia, place at our disposal an experiment in physiology which sends an effulgent beam of dispassionate scientific truth hurtling among the phantasies and shadows which the human intellect by reason of its limitation creates as its conception of hidden influences, since it cannot conceive of power excepting in form, and upholds as the essenital element of disease some definite structure.

Bruylants and Venneman discovered in jequirity an active principle which produced the purulent ophthalmia. The purulent ophthalmia of jequirity is, therefore, due to an irritating chemical com-

pound; the resolution of the disease is probably brought about by a chemical metamorphosis of the jequiritin, either by zymosis or oxidation. Martin[1] also describes two proteids in jequirity which produced violent inflammation in the eyes of rabbits, when introduced in doses of 1–2 milligram.

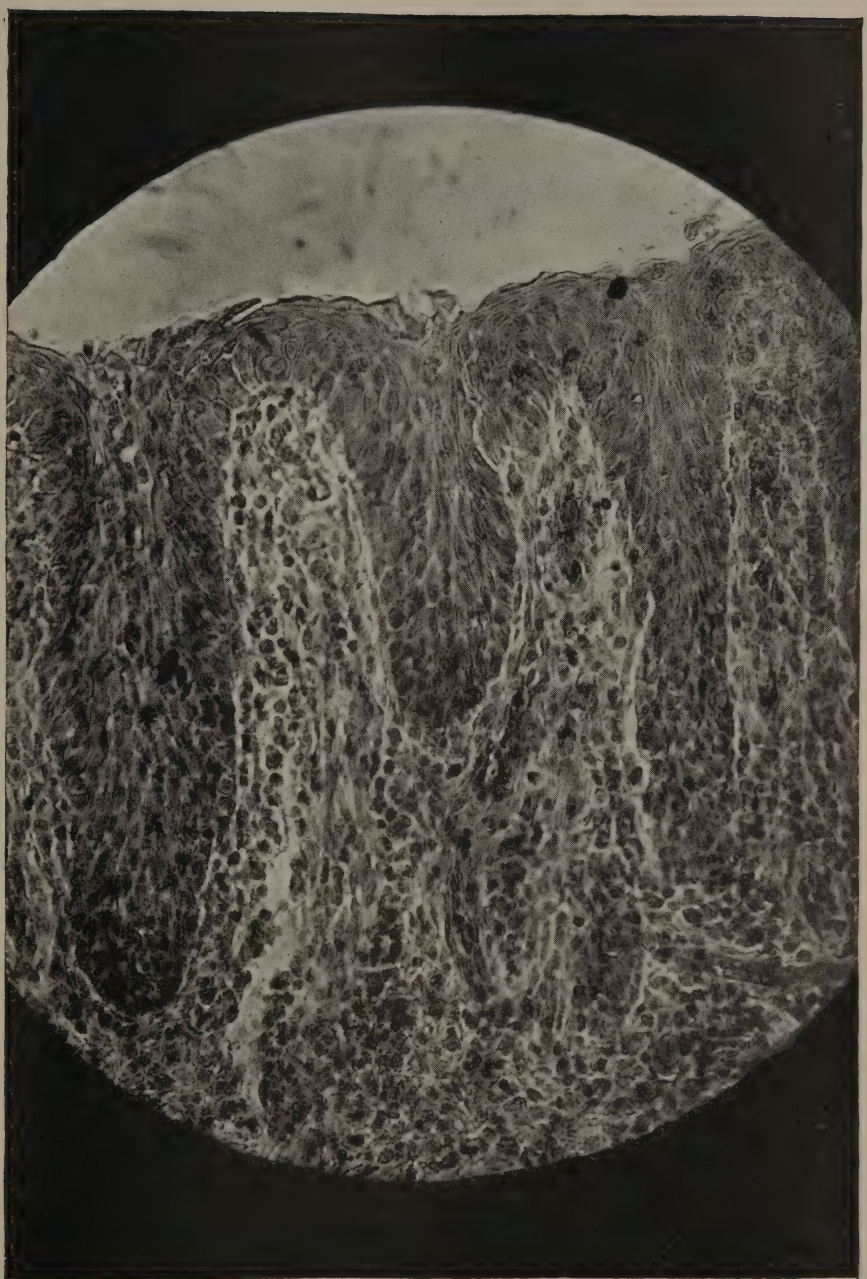
If the gonococcus has no value as a causative factor in gonorrhea, it still has the importance of determining the extent of its invasion, marking by its characteristic form the presence of the specific inflammation and the conveyance to distant organs of the specific virus. The joints, especially the knee, have a tendency to arthritis from gonorrheal ophthalmia. The gonococci have been found in the pus in the earlier stages of the inflammation, but have disappeared after a time. Their conveyance is easily explained. The leucocytes which devour them and remove them to the exterior, not finding an outlet at the surface, re-enter the capillaries and are carried off in the blood stream. Such can be seen in the picture in the capillary vessel at the lower right corner of the photo-micrograph.

Instead of viewing the gonococcus as the malignant essence of a dreadful disease, we may, with more reason, look upon it as the natural antidote in breaking up a chemical irritant into inert compounds, which are expelled from the tissues by that time-honored vehicle truly named laudable pus. If a vegetable substance can produce a purulent ophthalmia, we might pause a moment to reflect whether gonorrheal virus is essential to every case of purulent discharge from the eyes. In ophthalmia of newly-born children there are certainly cases in which no disease exists in the mother's sexual organs. This does not exclude infection, it is true, but in a well-regulated maternity hospital it renders it so improbable that we are not assuming too much in discarding it. An outbreak of purulent ophthalmia in a maternity hospital, which assumed the proportions of an epidemic, was traced to indiscreet douching of the parturient women with bichloride, and disappeared on its discontinuance. On the other hand, we have the statement of Cohn, that in a marriage alliance between two of his patients, one of whom had been affected with gonorrhea, but apparently was entirely cured, with each succeeding nativity announcement in the papers, he received a call to attend a case of purulent ophthalmia. Such a lurking poison must be encapsulated in the tissues, and forcibly expelled during coition. The profuse round cell invasion of the papillæ disposes toward the formation of connective tissue, as can be seen in the illustration; a portion of the virus is thus inevitably incarcerated; unhappily to burst forth again in a relapse. In the eye the course of the disease is

[1] British Medical Journal.

too rapid to permit of much connective tissue formation; the disease is very uncommonly attended by relapses. On the other hand, the trachomatous disease, which is communicated by the chronic stage of gonorrhea in which the chemical irritant has been partly metamorphosed into an inert compound, and is, therefore, too feeble to arouse the furious inflammation that the acute poison produces, smoulders through a long existence, during which a constant succession of relapses, which never assume violence enough to exterminate the disease, produce such an extensive connective tissue hypertrophy, that the original mucous membrane is almost entirely replaced by a cicatricial membrane. In this respect we have a gratifying harmony between the empirical treatment of trachoma and its pathological processes. Gonorrheal pus and jequirity seeds have been used for years as a radical cure for trachoma, often with brilliant success. The same effect is brought about to-day by measures less harsh in their effects and more easily restrained within safe limits. In either case no time is allowed for round cells to undergo organization, they are swept on in the rushing tide to the frontier, carrying with them the corpus delicti of the disease, either by sheer physical force of the current, or by the individual appropriation of the cells of the material in contact with them.

No great stretch of the imagination is necessary to see in the profile sections of the papillæ the bastions and re-entering angles of a fortress. Layer after layer of progressively attenuated squamous epithelial cells firmly cemented together form an impregnable barrier alike to extrinsic and intrinsic assaults. This protective armor which no doubt wards off many an insult of whose existence we are never conscious, becomes to an intrinsic foe or to one from without who has broken through the barrier and gained admittance, a hindrance in its expulsion. In studying the sections of the purulent conjunctiva one is impressed with the feverish activity of the hosts of leucocytes which have gathered in masses around the bases of the papillæ and penetrated into the papilla in such numbers that its walls stretch out in all directions. In almost none of these can one find a rupture in the free border, so great is the cohesive force between the cells. The lateral walls of each papilla are thickened by proliferated epithelium, which, coming into contact with the opposite wall of its neighboring papilla, likewise thickened, closes up the inter-papillary space with cells which are less flattened and evidently not so firmly cemented together, especially in the cul-de-sac. As we proceed outward toward the free border, the cells become more compressed and firmly united together. Strange as it may seem, the leucocytes have wedged these cells apart in many places forming long channels through the looser cells and thereby gaining the exterior. Sometimes the boring commences at the rounded base of epithelial



SECTION OF THE CONJUNCTIVA FROM A CASE OF PURULENT OPHTHALMIA.

Original photo-micrograph, 600 diameters, reduced to 400 diameters. Specimen prepared and photographed by Dr. James Wallace.

cells imbedded in the deeper structures; at other times the stream of leucocytes may be seen passing through an opening on the lower portion of one lateral border. This can be made out with some difficulty in our picture, the leucocytes distinguishing themselves from the epithelium by their smaller size, more rounded shape and the diplococci which they contain. On the right of the picture some connective tissue formation has taken place, and the symmetry of the papilla has been deformed by contraction. Connective tissue corpuscles are visible, extending downward where some attempt toward encapsulation appears to have been made. The picture is crowded with diplococci, especially toward the lower portion. The original enlargement was 600 diameters. Some reduction necessary in reproducing it has lessened this dimension to about 400.

As soon as the acrid poison has passed beyond the barrier of epithelial cells and established itself in a tissue containing capillaries and lymphatics, a new problem forces itself upon our consideration: To what extent will remote structures be affected by the intruder. The determination of blood to the part, the rapid diapedesis of leucocytes and the progression outward toward the point of least resistance set the flow of the current away from the internal structures, the resistance of the epithelial covering now opposes itself to the spontaneous efforts of the natural powers of defense. If the tide is turned and the corpuscles re-enter the capillaries or lymph passages, damage is produced in neighboring or remote structures. So, for example, through the canal of Schlemm, infection of the cornea with consequent necrosis is too often the result, and sometimes with a rapidity that is startling. The ciliary body, iris and choroid likewise feel the weight of the same infection, and the consequences vary from a mild uveïtis to a panophthalmitis that leaves nothing but a shrunken stump. The distant joints, such as that of the knee, seem peculiarly liable to the fury of the malignant influence. The irresistible character of the disease at times defies all human skill and renders impotent all treatment.

The lymph spaces of the conjunctiva communicate freely with those of the ciliary body. From the serous glands of the ciliary body, the bloodless organs of the eye, viz.: the vitreous humor, crystalline lens and cornea, derive their nutritive fluids. When the fount of their sustenance has been contaminated it is easily comprehended why the integrity of their tissues is so quickly lost. The vitreous is scarcely more than an indifferent medium. The lens is poised between the pressure from behind and the resistance from the front. On the cornea, however, the full brunt of the attack falls, and the softening due to suppuration deprives it of its proper solidity, which is its essential quality in maintaining the conformation of the eyeball. The

involvement of the cornea is generally considered to follow a solution in the continuity of its outer epithelial covering. Often, however, the infiltration is from within by means of Schlemm's canal. The writer had once the opportunity of watching a stream of pus start from the inner angle of the cornea and proceed towards the centre. The surface of the cornea was unbroken and the tissue was in other respects perfectly transparent. The involvement of the ureal tract is usually heralded by a contraction of the pupil, which has remained until this time dilated under the action of atropia. This contraction of the pupil forbodes mischief, and corneal trouble usually soon makes its appearance. On the other hand, a pupil which remains dilated is a very encouraging sign. After the tempest has subsided we usually make up our estimate of the losses by the appearance of the cornea. The other tissues may repair their damage in whole or in part, even when considerably affected. No such result takes place in the cornea; an opacity remains an opacity. A perforating ulcer with a bead of iris adherent in its opening becomes the point of departure of a progressive bulging which does not cease until the entire structures of both cornea and iris are indistinguishably merged in a more or less hemispherical protuberance termed total staphyloma. These changes apply equally to the purulent ophthalmia of infants and the purulent ophthalmia of adults. The disasters of the disease are more frequent among adults than among children, possibly from the greater virulence of the adult's disease as a result of infection from the acute urethritis. The systematic toilet of the genitals among females, necessitating the frequent cleansing of the fingers, probably accounts for the extreme rarity among them of auto-infection. I have never seen a case of gonorrheal ophthalmia in a woman as a result of disease of the vagina, although I have known a mother to contract it from washing her son's linen, and a still sadder case where a reckless father contaminated his almost parturient wife with gonorrhea, which not only inflicted on the puny creature just entering the threshold of life the burden of rescuing his eyesight from its remorseless grasp, but extended its malignant influence to the sister, who gave up one of her eyes as a sacrifice to this terrible Moloch.

The statistics of blindness show that among the various causes which have been ascertained in the asylums the purulent ophthalmia after birth amounts to 11 per cent. according to Magnus and 20 per cent. according to Gordon Norril.

Burchardt, in a recent paper, states that one-third of all the blind in Germany and Austria lost their eye sight as a result of gonorrheal ophthalmia. In our land the percentage is also very high. It is considered that blindness from purulent ophthalmia of children is the

result of bad treatment. That this is so in the majority of cases there is no doubt; that it is so in all is entirely false. The disease at times progresses in spite of all remedies, though fortunately for us our remedies usually bring it under control if we use them with the skill that judgment and experience dictate.

An opportunity of seeing the development of the various stages of purulent ophthalmia was afforded to me by the left eye becoming infected while attending the right, which had contracted the disease two weeks before. First appeared an increase of lachrymation, then a serous edema of the retrotarsal conjunctiva so delicate that the details of the underlying structures were not obscured. A few hours afterward minute ecchymoses were visible in many parts of the bulbar conjunctiva, the effused serum became turbid, the rosy hue of the conjunctiva deepened into crimson, while the swelling increased in both the lids and the bulbar conjunctiva. Finally the purulent exudation made its appearance, at first as a flocculent discharge, rapidly becoming creamy in consistence and yellowish-green in color. A peculiar rigid stare of the eye, due to the contracted and immovable pupil, was disclosed to the observer on forcibly separating the lids. This eye recovered without any blemish on the cornea. The first step in the treatment of the disease is to hermetically seal the unaffected eye, if such still exists. A watch crystal covered with a band of rubber plaster three inches in width by six inches in length effectively accomplishes this. The rubber plaster has a small circle cut out of its centre, in which the crystal partly fits, giving a means of observing the condition of the eye. After the diseased eye has been washed and the suppuration controlled, the apparatus which is called "Buller's shield" may be removed to allow fresh air and a cleansing lotion to give ventilation and refreshment to the imprisoned organ.

The proper place to treat the adult affected with this disease is in the ward of a hospital. The patient should be seen for the first three or four weeks at least once a day, *by the physician in charge;* in severe cases, around the critical time twice and three times a day are necessary, if the eye is going to be saved. It is strange that a disease so prolific of blindness should be of all others the only one excluded from admission to a hospital devoted entirely to the treatment of eye diseases. It is also a radical fault in the construction of dispensaries to hold their services only on alternate days. A diurnal visit in a disease which sweeps with such velocity is hardly enough, but the intermission of seventy-two hours between the last service of one week and the first one of the next is such an absurdity that it sets at naught all the asseverations of the progress of ophthalmic science. The first stages of the disease denote the amount of reaction which the

poison excites. This may be resolved into two factors, namely, the virulence of the poison and the resistance of the tissue to invasion. There must be at first a multiplication of the noxious material which extends itself to every accessible part. It is not exaggerating to state that the secretion from the early stage of one case of gonorrheal ophthalmia contains virus enough to reproduce itself in a thousand eyes. The treatment naturally suggested by this fact is, to subdue activity by lessening the temperature and exhibiting sedatives. The treatment of the first stage, therefore, is the application of ice water by means of folded gauze, repeated washing of the eye at intervals of half an hour or one hour with boracic acid solution, the instillation of atropia and cocaine, and, if necessary, the internal administration of morphia. The bowels are kept in action by regulated cathartics and the kidneys assisted in eliminating their secretions by alkaline diuretics. This stage of the disease is not usually presented to the oculist; the patient retains the general delusion that he has the pink eye or the grip, and does not consider it necessary to seek assistance. Somewhere between this stage and the destruction of the eyeball from suppuration, the oculist begins his treatment. The second stage is denoted by a purulent exudation. The enormous extent of the superior retrotarsal fold now reveals itself on opening the lids. To the tyro it is somewhat startling to see the enormous fold of conjunctiva swollen by the infiltration of lymph fall down between the eyeball and lids. A solution of nitrate of silver, gr. x to $f\bar{3}$, is now brushed over the everted lids once daily. The effect of this is at first an increased discharge of pus. In this stage a cessation of the purulent discharge, while the lids remain hard and brawny, is usually a precursor of sloughing.

The skill and judgment of the physician are now taxed to decide on the proper time to suspend cold applications and employ fomentations. The gray conjunctiva with only a fibrinous exudation which can only be separated from it with some force, and then leaves a raw and bleeding surface, is often considered as a distinct disease, whereas it is only a condition. A copious exudation is only needed to restore the circulation in the paralyzed vessels, and reduce the board-like rigidity of the lids. Warm applications continuously applied subserve this indication best of all. Dividing the outer canthus, free incisions into the lids parallel with their free border, also give a temporary relief to the blood stasis. Leeching of the temple is also a measure to be recommended in this condition. Nitrate of silver, if used at all, should be used tentatively. Any evidence of benefit, such as returning redness in the conjunctiva, should be rapidly acted upon to enlarge the effect. A simple gray slough from the surface, without any increased vascular activity, should be enough to warn us from its further use.

This condition is so exceptional that we have probably laid too much stress upon it. The usual phase of the conjunctiva at this period is a turgid membrane, weltering in pus, sometimes fluid, at other times, almost membranous. A solution of nitrate of silver of the strength of ten or twenty grains to the ounce is simply futile, the amount of fluids in the lachrymal secretion alone would neutralize the usual quantity of silver contained on the cotton swab. A pencil of mitigated nitrate of silver, either one-third or one-half strength swept over the lids, accomplishes two results, it removes the membranous deposit clinging to the conjunctiva as if by magic, it also coagulates the layer of epithelial cells forming the free border of the papillæ, and in removing this barrier opens the channels by which the leucocytes are striving to escape. One application in this manner will reduce the swelling of the lids in twenty-four hours to a degree that is almost incredible. Scars do not result from a destruction of epithelium, but from an organization of round cells into connective tissue. The free use of cocaine and atropia cannot be too highly extolled, one lessens reaction, the other quiets the whole uveal tract. We have nothing to dread from opacities of the cornea, that extend no deeper than its epithelium. The rapid restoration of epithelium is known to all. The preference given to the mitigated stick is dependent upon its mechanical effect in piercing the fibrinous exudation, and bringing the astringent directly in contact with the epithelium. Burchardt accomplishes no more than this in his new method of treating the disease by energetic massage of the lids, while an assistant floods the eye with a weak solution of nitrate of silver ($\frac{1}{6}$ per cent.).

Waste of energy is always to be deprecated. Unusual violence is only permissible in proportion as the desperate nature of the disease rivals in magnitude the destructive nature of the remedy. Then we realize in wonder the triumph of medical skill which gauges so delicately the effect of each, that two destructive influences exterminate each other, two antagonists consume each other in a living tissue, and the jeopardized organ is freed from the clutches of both in the equilibrium which results from the satisfaction of their mutual polarity. The discretion of the physician apportions the strength of the astringent to the grade of the inflammation, but as a convenient guide one will do well in noting whether any curdy precipitate takes place in following the application of nitrate of silver with salt water to neutralize the excess. If no precipitate takes place it is likely that the silver has all been decomposed by the tears. There should be some excess left which the chloride of sodium will neutralize. We find that as the disease approaches recovery we obtain this characteristic deposit with a progressively weaker solution of the caustic. A dense curdy

precipitate, which accumulates in distinct masses, denotes an application that is probably too strong. Simply noting this reaction will often be our guide in moderating our treatment as recovery advances. We substitute for the mitigated stick a 4 per cent. solution, then a 2 per cent.; finally 0.5 per cent. is all that is necessary. As a suitable exchange for nitrate of silver when convalescence is well assured, and the granulations have almost left the conjunctiva, the solution of tannic acid in glycerine of the strength of 2 per cent. is very gratifying in its effects, and forms a very good succedaneum to silver. Peroxide of hydrogen is one of the most useful agents in the course of treatment. In no sense has it any specific effect on the disease, but as a detergent it cleans off the conjunctiva is a most effective manner, excepting in the acme of the disease, where the secretion becomes almost membranous as soon as it forms. Only the pencil is useful at this juncture, but the peroxide comes in well afterwards. Atropia and cocaine are used from first until last, in the late stage they are only used three times during the day. Cocaine is used sufficiently strong and frequently enough to keep the eye quiet; atropia ought to be used every three hours at least in the early stage. It is so difficult to get either of these drugs absorbed that no strict limitations are given as to dosage. A good plan is to get the eye clean, then flush the cornea with four or five drops of a 4 per cent. solution. In five minutes there is usually a diminution in the lachrymal secretion; now is the time to get the atropia absorbed. Two or three drops of a 1 per cent. solution should be applied and gently rubbed over the cornea by the closed lids moved by the physician's fingers. If there is any clouding of the superficial layers of the cornea it is very doubtful about its being a result of the use of cocaine. But it is infinitely less important than the death of the cornea in mass from a purulent cylclitis whose products find their way into the corneal spaces through the canal of Schlemm.

After the inflammation has subsided, a third stage remains to be considered, namely, that of repair. Sometimes there is nothing of this stage of the disease but a lingering hyperemia of the conjunctiva and a few granulations on the inner surface of the lids. These are the fortunate cases, contrasting markedly with the sightless balls that unfortunately sometimes result from this affection.

Between these two extremes, we have numerous grades of corneal trouble, ranging from slight opacities to perforations with or without prolapse of the iris. The influence of eserine is very good in aiding the clearing of the cornea, especially when atropia is used as a counter effect. The ciliary body undergoes a sort of milking process which liberates more lymph toward the front and sets the flow in brisk movement towards the canal of Schlemm. Yellow oxide ointment with

and if thoroughly applied does massage of the cornea has been used for many years for this purpose, much to facilitate the work. A little respect must be paid to the beneficent influence which resides in this human microcosm. This will be better understood by simply quoting from the notes of one of my cases that after iridectomy eserine and yellow oxide had brought the vision to $\frac{5}{30}$ and the patient was discharged as not susceptible of further improvement; six months later the vision had reached $\frac{5}{12}$. There is no greater disappointment than the result of the yellow crumbling tissue which represents the formerly transparent cornea. It is almost incredible, the marvellous changes that take place in it during the convalescent period. Eyes that we figure on as subjects for enucleation become very useful organs. Too much earnestness can not be concentrated in urging upon the physician to divest himself of the perfunctory habit of visiting the patient diurnally, and in the critical stage of the disease to make two, three or even four visits in the twenty-four hours. The cold applications must be changed every half minute if they are to be useful, then comes the time which must be eagerly watched for when cold gives place to heat. Apart from the secondary effects of buoying up the patient, encouraging the watchers and aiding them, his eye will note changes best that have a significance in treatment, when the faculty of memory is not taxed too long and the impressions are frequently renewed.

MEMORANDUM.

PAROTITIS IN PNEUMONIA.

THIS complication is of excessive rarity. I remember no case at the Montreal General Hospital, which has an unusually large service in this disease, nor was there an instance in the 105 post-mortems in the disease which I performed at that institution. It is very much less frequent than endocarditis or meningitis, with which, however, it has in one or two instances been associated. Traube mentions a case[1] in which, in the course of an abscess following pneumonia, double parotitis developed on the forty-fifth day; the patient recovered.

The following is the only instance which has come under my personal observation. The cardiac physical signs were also of very great interest, inasmuch as there was a very well marked pleuro-pericardial friction.

[1] Gesammelte Beiträge, Bd. II, Article 29.

PNEUMONIA OF THE UPPER THIRD OF THE LOWER LOBE OF THE LEFT LUNG; PLEURISY; PAROTITIS; DEATH.

M. R., aged 33, admitted to the Philadelphia Hospital, October 29, 1888. The patient was an Italian without friends, and as he was delirious no history could be obtained. The temperature on admission, at 4.30 P.M., was 103°; pulse, 120; respiration, 52. He was very restless all night and refused medicine. Feces and urine were passed involuntarily.

October 30, 1 P.M., the condition was as follows: Patient is delirious; tongue dry; hands tremulous and constantly picking at the bedclothes; pulse 120, feeble; respiration 50; temperature 103°. Expansion on the left side is defective, and there is a well-marked tympanitic note from clavicle to sixth rib; posteriorly there is dulness extending from near the spine of the scapula almost to the base and into the posterior half of the axilla. Over the dull region the breath sounds are tubular, with rales at the end of inspiration. Blowing breathing is intense at the angle of scapula. There is no expectoration. The heart sounds at the apex are clear.

October 31. Pulse ranged from 110 to 120; respiration 48 to 52; temperature from 101° to 103°. Still delirious and has had very little sleep. Takes medicine and nourishment well. Has been taking carbonate of ammonia, aromatic spirits of ammonia, whisky and strychnia. The patient is decidedly worse. The pulse is more feeble and the skin looks now a little bile-tinged. He is still delirious; it was noticed this evening that the left parotid gland was swollen. The bowels have been freely moved. The physical examination gave the following: Left lung clear to lower border of fourth rib, below which there is dulness. There is a loud friction murmur and many rales in left axilla. Below the third rib and to the left of the sternum there is a well-marked pericardial, to-and-fro, friction murmur. It is not heard at the base and is loudest in the fifth interspace below the nipple. It was concluded that it was pleuro-pericardial friction. The condition at the back of the chest remains the same.

November 2. Temperature through the day has ranged from 102° to 103°; pulse from 126 to 130, regular and small; respiration 44 to 52. Examination showed blowing breathing outside the nipple line and in the scapular regions rales were numerous.

At the apex both sounds were heard, a soft systolic murmur with the first. Sounds are clear at the aortic cartilage. The to-and-fro friction in the fourth and fifth spaces is scarcely audible.

November 3. The patient passed a fair night, slept better. The parotid gland not much swollen. Temperature 102.9°. The apex systolic murmur, which is much more distinct, is not heard in the

axilla, but is much intensified towards the sternum. The sounds are clear at the aortic cartilage. The murmur is loud in the third and fourth left interspaces. The pleuro-pericardial friction sound has entirely disappeared. The percussion note is clear to the upper border of the fifth rib; it is dull from this into the axilla.

November 4. The patient is weaker; pulse 130 to 140; tremor is constant; respiration 44 to 56. Passes urine and feces involuntarily. The apex systolic murmur is distinctly louder and rougher than two days ago. Sounds at the aortic cartilage are clear. There are no cutaneous ecchymoses; no sputum has been obtained.

Respiration 65; pulse 160; temperature 103.6°. Death took place at 12.15 P.M.

Autopsy, twenty-four hours after death. Body that of a small, moderately muscular man; skin slightly icteric; left parotid swollen.

Thorax: A pint and a half of sero-purulent fluid in the left pleura. The upper lobe of the left lung is glued to the pericardium by thick fibrinous exudation. The entire pleura, visceral and parietal, is covered with a very thick creamy material. The right pleura is smooth.

Heart: The pericardium is smooth; no exudation. The right chambers are dilated and full of dark, firm clots, which can be withdrawn from the vessels. No endocarditis. Muscular substance somewhat relaxed and turbid. The mitral orifice admits three fingers to the middle of the second joint.

Left lung: The lower two-thirds of the lower lobe are collapsed, airless and dark in color. The upper third stands out very prominently, is very firm and in a condition of typical red hepatization. The bronchi of this part are filled with tenacious exudation. The upper lobe is crepitant throughout and a little congested at its base, but did not contain much blood or serum. The right lung is congested at the base. The bronchial glands are enlarged and tumefied. The spleen is enlarged and soft and contains two large wedge-shaped infarcts with yellow-brown soft centres. The kidneys are swollen and turbid; no infarcts. The liver presents the condition of cloudy swelling. The stomach is small; the intestines normal; the large bowel presents patches of deep congestion. The left parotid gland is deeply congested; the interlobular septa infiltrated with blood and here and there are distinct foci of pus. The brain presents no special changes.

WILLIAM OSLER, M.D.,
Professor of the Theory and Practice of Medicine in the Johns Hopkins Medical School.

CASE OF PERICARDITIS TREATED BY INCISION AND DRAINAGE.

The points of interest about this case are: (1) A septic pericarditis following acute necrosis of the bones of the nose; (2) the peculiar delirium occasionally seen with pericardial effusion; (3) the onset, two weeks after operation, when the patient had been doing well, of excessive cardiac debility, probably due to myocarditis.

January 15, 1890, I saw, with Dr. Donaldson, Mr. H., aged 36, who had come on from Louisville to spend Christmas at his home. A few days before the New Year he began to have trouble with his nose, which became acutely inflamed and swollen, and though there was no fetor in the secretion Dr. Donaldson thought that necrosis of the bones was present. A week or so before I saw him he began to get a little short of breath, the fever, which had been moderate, became high, and there were signs of congestion at the base of the right lung. The pulse became much more rapid and feeble, and the heart sounds indistinct. When I saw him the condition was as follows: He sits propped up in bed. Respiration is noisy, about thirty-five a minute. Face looks dull, perhaps a little suffused, not cyanotic. Part of the difficulty in breathing comes from the fact that both nostrils are obstructed. The pulse is 110, irregular in volume and in force. Heart; inspection; nothing noticeable, as a heavy layer of panniculus covers the mammary regions, no impulse. No thrill. Dulness extends to upper border of the third rib in parasternal line and to a level of the second rib on the sternum; to the right it reaches two fingers' breadth beyond the sternum; to the left at least two inches beyond the nipple line. On auscultation no heart sounds audible over body of heart or towards apex. At the base feeble, distant, only just distinguishable sounds can be heard.

Resonance is impaired at the right base, and there are here rales, but no special blowing breathing. In the left lower axillary region there is a flat tympany, a modified Skoda's resonance.

It was thought from these signs that pericardial effusion existed. There was albumin in the urine, but no tube casts. A remarkable form of delirium was present; he would talk quite rationally for a time and then wander off on subjects connected with his business, and never seemed exactly to know where he was, though he always recognized his father and his wife. I saw him again on the 17th and on the 21st. The condition remained practically the same. Pulse was extremely irregular, feeble, 112 to 120. Temperature rarely above 101°. Respirations from 35 to 45. He could not lie down and the color of his face was certainly worse. Physical signs persisted unchanged. There was an entire absence of heart sounds. The dulness

had certainly extended more to the left. On the 22d Dr. Halsted cut down into the fourth interspace, midway between nipple and sternum, and after aspirating somewhat over a quart of a sero-purulent fluid, incised the pericardium and inserted a gauze drainage plug. The patient stood the operation very well. The area of dullness diminished remarkably; the heart sounds were better heard; but there persisted in the fifth, sixth, seventh and eighth interspaces outside the left nipple marked dullness as far as the mid-axilla. The improvement after the operation was rapid. The pulse the following day was steadier, with only an occasional intermission. The heart sounds were more clearly heard and the area of dullness still further diminished. The drainage was very free, soaking the thick layers of gauze. On the third day the dullness was less marked in the axilla. The note was here somewhat tympanitic. The peculiar delirium persisted. Temperature fell to normal. He took his food well and gained rapidly in strength. On the eighth day the discharge had become very much less. The opening was still free. Dullness had diminished very much. On the tenth day after the operation the following note was made:

February 1. Patient is very comfortable, sleeps now with his head low, breathes without difficulty. Respirations are about 30. Pulse 112, regular, of fair volume. There is still moderate purulent discharge soaking the inner dressing. Cardiac impulse is not visible or palpable. Dullness begins at the lower border of third rib and at right margin of sternum; to the left it shades gradually from the nipple. Auscultation: First and second sounds heard everywhere in cardiac regions, still a little distant; no murmurs. No pericardial friction to be heard.

There is still a defective resonance at the right base with rales, clear at the left base, and in the lower left axilla the note is more normal than it has been. Delirium has not been present for some days.

February 6. Patient has not been so well. The drainage is free. There is no fever, but the pulse continues very rapid and has become more irregular. He is also very restless at night and requires morphia hypodermically. There was apparently a slight extension of the dullness to the left, but Dr. Halsted could pass his finger well within the pericardium and there seemed to be no reason to fear a reaccumulation. The heart sounds were clear, but not very strong; no murmur.

February 7. Patient has failed rapidly. Pulse extremely irregular and feeble. Great restlessness. Color not so good. Respirations more hurried. February 8. He sank and died this morning. No autopsy.

WILLIAM OSLER, M.D.,
Professor of the Theory and Practice of Medicine in the Johns Hopkins Medical School.

A SOURCE OF INFECTION ON AMERICAN PRAIRIES.

From time to time we find in the papers reports of typhoid fever cases, which are supposed to have arisen *de novo*. These cases have usually occurred in prairie and other sparsely settled districts of the west or south, where the inhabitants live at considerable distances from one another. The circumstances of none of these cases, which persuaded some writers that infection was absolutely out of the question, made a great impression upon me, having lived for many years in such districts, and knowing well their conditions and chances of health and disease.

The cause which induced these writers to exclude the possibility of infection was that the cases cited by them could not be connected with any known contact with preceding cases or with infected water. To show the insidiousness of the disease and the immense danger of infection by unsuspectedly transmitted germs, I will briefly refer to a fact which lies within my personal experience, and which occurred in the prairies of Kansas on the emigrant wagon-trail, along the line of the old pony express route, starting from St. Joseph, Missouri, through northern Kansas to Nebraska and the far west.

Emigrants, in a long trip, always take care to occupy during the night some ravine safely sheltered against storms; for obvious reasons it lies always by the side of a water-course. It is not only the water and the shelter which makes such a location desirable; in a prairie country the slow-running branches (small creeks) offer the only chances of obtaining fuel, their banks being lined with brush, burr-oak and paw-paws. They draw their water from the branch or the spring that feeds it, and the brush serves as a withdrawing place for defecation. At my time the emigrants passing along this trail, in my district, usually hailed from Missouri, Iowa, Illinois, Indiana and as far east as Ohio. Think of the thousands of different waters these men drank during their long peregrination! If what Vaughan says is true (and it seems exceedingly probable) that healthy individuals, immune themselves, help to distribute the typhoid germ, think what chances of latent propagation and treacherous distribution in every direction are created by this multitude of men polluting the branches from which hundreds of settlers further down procure their water supply. It was the circumstance that the children of settlers living in the neighborhood of these deserted camps used them as play-grounds which gave me the opportunity of tracing back typhoid fever, the so-called typho-malarial fever of the prairie, to such a centre of infection; at least there seemed at the time to be no other explanation

possible. The two children whom I had to attend had both, moreover, played together at the camp and had been stricken at the same time. That it was typhoid fever and not malarial fever was proved not only by the tests of calomel and of quinine, which are the usual tests there, but by the success of the purely typhoid treatment, that is, a treatment symptomatic up to the glazed tongue period of the disease, and then the treatment by turpentine and carbonate of ammonia.

I have not the least doubt that, in every case of enteric fever, in which it is so emphatically declared that no infection had taken place, a better knowledge of the facts, circumstances, localities, etc., would have led to the discovery of an infection, and I indorse unhesitatingly these words of James C. Wilson: "This micro-organism, which is then the infecting principle of enteric fever, is *invariably* derived from a previous case."

ALBERT S. ASHMEAD, M.D.

CLINICAL DEPARTMENT.

KENSINGTON HOSPITAL FOR WOMEN, PHILADELPHIA.

[Service of DR. CHARLES P. NOBLE.]

THE following case presents a few points of sufficient interest to merit a report.

Mrs. D., aged 44 years, mother of twelve children, states that about sixteen months ago she first noticed a lump in the upper inner quadrant of the left breast. This enlarged rapidly, and about eight months ago it became painful. The intensity of the pain increased from that date, and the tumor continued to grow in size. She presented herself for treatment on account of the severity of the pain, which she said had lately entirely deprived her of sleep.

Examination showed the whole breast to be a large infiltrated mass. The overlying skin was attached to the growth and red and brawny, appearing as if it would soon break down. Enlarged veins extended over both shoulders, and the lymphatic glands in the left axilla and under the left clavicle were markedly enlarged and tender. Operation was advised for the purpose of relieving pain. At the same time she was informed that it would not cure the disease. On examining the urine it was found to contain a large amount of sugar. However, in making the record, the specimens were wrongly labeled, and

the diabetic urine was attributed to another patient whose specimen was examined at the same time. The operation was performed and the error only discovered at a later date.

During the five days in which she was in the hospital before the operation the temperature varied from normal in the morning to 101⅘ in the evening, and the pulse from 72 to 120. On the day following the operation the temperature reached 101⅘°, and declined steadily to the normal from that date. At the operation the neoplasm was found to be encapsulated, but breaking through its capsule at various points. The skin on the lower aspect of the breast was used as a flap, and as the wound was an extensive one, gauze drainage was inserted into the outer angle. The wound practically united by first intention. The woman left the hospital on the fifth day, and returned to the dispensary for dressing.

Since the operation the woman has been free from pain at the seat of her former trouble, the enlarged and tender subclavicular and axillary glands have disappeared, showing them to have been of inflammatory origin rather than infiltrated with new growth, and the comfort of the patient has been greatly increased.

The points of special interest in connection with this case are: (1) The close resemblance of the new growth to carcinoma as shown by the age of the patient; the affection of the lymph glands and enlargement of the subcutaneous veins; its attachment to the overlying skin; its painful character, and finally the cachexia; and (2) operation in a diabetic patient. In regard to the latter point Drs. Keen and White, in "An American Text-book of Surgery," state that "If diabetes is found, no operation should be done unless the need is absolute, for diabetics are markedly predisposed to hemorrhage, suppuration, erysipelas and shock."

In the "International Encyclopedia of Surgery," A. Verneuil writes substantially as follows: "All are agreed concerning the unfavorable course of wounds and the gravity of operations in diabetic patients. The reparative process is often absent or at least very slow and interrupted by numerous complications. In open wounds are noticed primary capillary hemorrhages, which are difficult to arrest, and also secondary hemorrhages. In contused wounds, diffuse inflammation, bronzed phlegmons and extensive sloughing. Insignificant wounds become inflamed and provoke lymphangitis, erysipelas and phlegmons, which become complicated by gangrene. Even moderate pressure of an apparatus has produced circumscribed gangrene of the skin. Diabetic phlegmon and gangrene sometimes progress slowly and without provoking any violent or grave symptoms, but they none the less terminate in death in the majority of cases. Wounds affecting a

diabetic subject generally aggravate his condition. The gravity of the prognosis is greater as the wound or operation is more serious, as the quantity of sugar is larger, and as the diabetes is accompanied with more advanced visceral lesions.''

WILLIAM E. PARKE, M.D.,
Surgeon to Out-patient Department.

ALUMNI NOTES.

OF the twelve graduates of the medical department, who are practicing in Prince Edward's Island, Dr. Roderick MacNeill, of Stanley, and Dr. John Sutherland, of Bedeque, are members of the medical council, the former of these gentlemen acting as treasurer and corresponding secretary. This council has to do with the standing of medical men on the Island, and certain definite qualifications are required before a permit to practice can be granted.

In Mobile, Alabama, Dr. George A. Ketchum, Dr. G. Owen, Dr. T. Gray Thomas, Drs. William MacMastin, Dr. Claudius Henry Mastin, Sr. and Jr., represent the University of Pennsylvania.

At a recent meeting of the Managers of the Pennsylvania Hospital, Dr. Richard H. Harte was elected as visiting surgeon to the Hospital, in place of Dr. William Hunt, who resigned after a long and faithful service in connection with this Institution.

Dr. Richard Wilson, of the class of '90, who has just completed his term as resident physician at the Pennsylvania Hospital, sailed on the 23d of November for Cuba, where he proposes to remain until January, when he will return to Philadelphia and commence the practice of his profession.

NECROLOGY.

Dr. John M. Keating received his early education at Seton Hall College, South Orange, New Jersey, and at the Philadelphia Polytechnic College. In 1873 he graduated from the Medical Department of the University of Pennsylvania, subsequently serving as interne at the Philadelphia Hospital. For fourteen years he was in attendance as visiting obstetrician to that hospital, contributing to medical literature many valuable clinical lectures and articles on the diseases of children. He was lecturer on diseases of children in the University of Pennsylvania; assistant physician to the Children's Hospital; consulting phy-

sician for diseases of women in the St. Agnes' Hospital; gynecologist to St. Joseph's Hospital; physician in charge of the children's department of Howard Hospital and of St. Joseph's Female Orphan Asylum. For fifteen years he was connected with the Penn Mutual Life Insurance Company, during the latter ten years of which he acted as Medical Director. Possessed in this way of a large experience, associating with the foremost minds in his profession, both personally and by familiarity with their writings, he rapidly acquired a world-wide reputation.

He has contributed largely to medical literature; was one of the originators of the "International Clinics," and for some time editor of the *Climatologist,* as well as a frequent writer of magazine articles. His most lasting monument, however, will be the "Encyclopedia of the Diseases of Children," with which his name is connected, and which owes its success largely to his untiring efforts. The sale of this work has been enormous, and it is to-day the most advanced and complete work upon this subject in the English language. Largely on account of this untiring devotion to his chosen profession the insidious workings of the tubercle bacillus undermined his constitution, and he finally succumbed to the power of this dreadful scourge on November 4.

[Address all communications for this department to Dr. Joseph P. Tunis, Secretary and Treasurer of the Alumni Society, 129 South Eighteenth Street, Philadelphia, Pa.].

EDITORIAL.

NOTES ON THE UNITED STATES PHARMACOPEIA, 1890 REVISION (No. I.)

Among the various changes in the late revision of the United States Pharmacopeia none are more in the line of progress than the effort at accuracy in those preparations whose alkaloidal strength is capable of being readily determined by practical assay. In some of the important preparations this effort involves, however, a change of strength which it is essential should be carefully regarded by prescribing physicians. The new Pharmacopeia recognizes three opiums: Simple opium (*Opium*, U. S. P.), which is required officially to yield not less than 9 per cent. of crystallized morphine; powdered opium (*Opii Pulvis*, U. S. P.), which "should yield not less than 13, nor more than 15 per cent. of crystallized morphine;" and deodorized opium (*Opium Deodoratum*, U. S. P.), which is made from powdered opium, and is of the same alkaloidal strength. This deodorized opium is equivalent to the denarcotized opium of the United States Pharmacopeia of 1880. In prescribing opium, if a physician write simply opium, and if the apothecary put up the prescription accurately, a very weak, comparatively inert opium, will be received by the patient. The deodorized opium is nearly twice the strength of opium, and has also the superiority of freedom from narcotine, and from the odorous principles of opium.

The extract of opium of the present United States Pharmacopeia has no advantages over the deodorized opium, except it be in the question of quicker solubility. It is required by the Pharmacopeia to contain 18 per cent, of morphine. It is twice the strength of Opium (U. S. P.), but only a little stronger than the Opium Deodoratum, or the Opii Pulvis.

The matter is made more important by the fact that the *Pilulæ Opii* of the United States Pharmacopeia, each of which contains one grain, are officially directed to be made from powdered opium. They are, therefore, nearly twice as strong as opium; so that the writer of a prescription for Pilulæ Opii gets nearly twice the dose for the grain that is called for in a grain of opium.

It seems to us extremely unfortunate that the Pharmacopeia should

engender so much confusion in such an important matter. We have been accustomed to consider the extract of opium as twice the strength of opium, now it has practically the strength of the opium pill of the Pharmacopeia.

In the making of the liquid preparations of opium the United States Pharmacopeia requires that powdered opium should be employed. Paregoric now has in it about 1.85 grains of powdered opium to the ounce; the tinctures are required to assay 1.3 to 1.5 grammes of morphine to 100 cubic centimetres. The name of the deodorized tincture has been changed from Tinctura Opii Deodorat*a* to Tinctura Opii Deodorat*i*.

An important assayed preparation, whose strength has been altered, is that of nux vomica. Ten minims of the old tincture were supposed, and probably fairly did represent $\frac{1}{100}$ of a grain of strychnine. The new tincture is required by the Pharmacopeia to contain in 100 cubic centimetres 0.3 grammes of alkaloids. This makes about $\frac{1}{35}$ of a grain of total alkaloids in 10 minims of the tincture. It is commonly estimated by pharmaceutical chemists that strychnine constitute about 40 per cent. of the total alkaloidal yield of nux vomica; an estimation which seems to us somewhat under the mark. This will give a strength of about $\frac{1}{75}$ of a grain of strychnine to 10 minims of the tincture of nux vomica. At first this would probably suggest to most writers that 30 minims of the tincture would be equivalent to $\frac{1}{25}$ of a grain of strychnine; it must be remembered, however, that in speaking of the dose of strychnine in common language we always have in our minds the salt of strychnine, and of course the dose of the alkaloid is less than the salt. Moreover, brucine has been shown by Professor Reichert to have practically the same physiological action as strychnine, except that it is less powerful; so that we think we are not far from the mark in estimating that 10 minims of the tincture of nux vomica are really equal in dose to $\frac{1}{40}$ of a grain of the sulphate of strychnine; making the maximum dose of the tincture of nux vomica at 20 minims equal to $\frac{1}{20}$ of a grain. The extract of nux vomica is required to contain 15 per cent. of total alkaloid; ¼ of a grain of it, therefore, will equal about $\frac{1}{27}$ of a grain of the alkaloid, and may be considered a full dose.

H. C. W.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D.

Sporadic Cretinism in America.

Osler (*The American Journal of the Medical Sciences*, November, 1893) has recently had three cases of cretinism under his care in Baltimore. He has made a careful search of the literature and inquiry among superintendents of asylums and friends, and can find but eight more cases of true cretinism in America and Canada, eleven cases altogether on record. The important divisions of cretinism, based on Horslery's report, are: (1) *Congenital cretinism*, which is rare and usually associated with absence of the thyroid gland. The supra-clavicular tumors are usually well marked, and the skin generally is thick and in folds. The limbs are short and the epiphyses swollen, while the shafts are much ossified. The skull is broad and short, and the sutures open while the basi-sphenoid junction is prematurely ossified. Degenerative changes and a myxedematous conditions have been met with. (2) *Ante-natal and subsequent slow development of cretinism.* Here the changes appear to have been initiated during fetal life; but are slight and scarcely noticeable at birth. The child shows no, or very slight, signs of intelligence. There may be a goitre; the body is large, with disproportionate hands and head. The subcutaneous tissues seem swollen. There may be non-development of the facial bones and a large tongue. The neck is short and thick. These cases progress slowly into the next worse class of cretins. (3) *Development of cretinism in early childhood.* The child may be perfectly normal at birth and show no signs of disease until the second or fifth year. The child then becomes less and less intelligent, does not increase in height, the limbs become short and thick, the abdomen becomes prominent because of lordosis, speech becomes thick, the voice rough and stridulous, the skin coarse and the hair scanty and thin. There is well-marked anemia; the subcutaneous tissues feel waxy, as though there was solid edema occupying the connective fibres of the tissues. The condition reaches its height about the fourteenth year and thenceforward remains perfectly stationary until death. Hence, at the age of 30, there are the physical appearances of childhood. The important points in making a diagnosis are the physiognomy, the shape of the head, the stunted growth, and the condition of the connective tissues, the mental deficiency is less characteristic, presenting nothing not seen in ordinary idiocy. The condition of the thyroid is uncertain. There are cretins with goitre and cretins in which the gland is entirely absent. The most satisfactory diagnostic feature is the conditions of the skin and connective tissues. The

statements which have been made as to the presence of endemic goitre in this country are based upon incidental references made in the begining of the century. So far as the writer knows the disease does not occur endemically in this country. He also gives a notice of one case of operative myxedema by Dr. McGraw, of Detroit. There has been a progressive change in the man since the thyroid was removed in 1881.

Intubation of the Larynx.

Whitney (*Boston Medical and Surgical Journal*, October 5, 1893) believes that while this operation is preferable in some cases to tracheotomy, it is especially adapted to those cases in private practice where the pareuts of the child will neither submit to its removal to a hospital nor to a tracheotomy. He believes they will submit to intubation under such circumstances. In the article, he suggests the use of an ordinary tea-kettle as a generator of steam. A rubber hose is attached to nose of the kettle and the steam thus carried to the bed. If there is too great volume of steam it can be reduced by the use of a "reducing coupling" used by plumbers. Mercury, food and stimulation are the best medicines.

Disturbances of Sensibility in Diabetics.

Vergely (*Gazette Hebdomadaire de Medicine et de Chirurgie*, August 12, 1893), in an article giving several cases and a general review of the literature of the above subject arrives at the following conclusions:

(1) Disturbances of sensation in diabetics are common—analgesia and disturbance of the response to heat predominate.

(2) Disturbances of heat sensation are frequently the only troubles of sensation met with.

(3) In one observation the patient was analgesic, completely thermo-anesthetic and presented strikingly the picture of syringomyelia.

Membranous Throat Affections.

Williams (*The American Journal of the Medical Sciences*, November, 1893). The article above-named is one of the greatest importance. Upon the lines laid down by Dr. Williams, whose observations are probably based on Bagunky's article on the same subject published in *Archives für Kinderheilkunde*, Vol. 13, Parts IV, V, VI, and quoted in this journal for January, 1892, the general practitioner must inevitably finally work. The microscope is destined to become as important an aid to the diagnosis of diphtheria as it is in the determination of diseases of the urinary tract. The reader is referred to the original article in order to get more fully what will here be briefly stated. He makes his diagnosis solely on the presence or absence of Loeffler's bacillus. This organism must be searched for by a trained bacteriologist, though methods for its detection may yet be made feasible for the practitioner. Seventy-six cases of membranous throats were examined. Fifty-four of these cases were diphtheria, either alone or complicating other diseases Forty-two were pseudo-diphtheria. The location of the membrane was various, and was just as frequently confined to the tonsils in diphtheria as in pseudo-diphtheria, and as frequently upon other portions of the throat in pseudo-diphtheria as in diphtheria. The author believes the best possible treatment to be the local application of *strong* solutions of peroxide of hydrogen. The general treatment is alcohol, and food.

Enemeta of Creasote in Tuberculosis.

Ellmann and Popper (*Wiener med. Wochenschrift*, 13-15, 1893) have treated eleven cases of tuberculosis by means of enemata of large doses of creasote emulsion. They consider diarrhea a contra-indication for the use of the drug in this way, and have not noticed any improvement in the lung signs. They do not consider the use of the drug in this manner as any progress in creasote therapy.

Tubercle Bacilli in Sputa of Patients who Have Taken Creasote.

Albu and Weyl (*Zeitschrift für Hygiene und Infectious Krankheiten*, Vol. XIII, Part 1) have proved experimentally that virulent tubercle bacilli are present in the sputum of persons who have taken large doses of creasote. Sputa were examined from persons who in from three to seven months had taken 7200 grains, 3840 grains, 2460 grains of creasote respectively. This sputa had been given to a few guinea pigs and rabbits and it had caused tuberculosis in them.

Gonorrheal Endocarditis.

Leyden (*Deutsche medicinische Wochenschrift*, September 21, 1893) reports a case of chronic gonorrhea, with gonorrheal arthritis, which eventuated in an ulcerative endocarditis. Both the mitral and aortic valves were affected. In the exudation on the valves a pure culture of gonococci was found. He gives an exhaustive review of the literature of the subject and concludes:

(1) That the relation of gonorrhea and endocarditis is proven by a great number of observations.

(2) That a part of these cases undergo a chronic course and become partially cured.

(3) That other cases undergo a malignant change and end in death.

The aortic valve is most frequently attacked. Usually the cases are preceded by an arthritis. All the cases have occurred in males.

The Significance of Acetonuria in the Prognosis of Diabetes.

Hirschfeld (*Deutsche medicinische Wochenschrift*, September 21, 1893), in an article based upon the observation of patients with and without diabetes, comes to the following conclusions:

(1) The use of an exclusive meat and fat diet in healthy individuals will cause an increased excretion of acetone. The addition of carbo-hydrates to the diet prevents this, and destroys the acetone found in the body. The loss of albuminoids in the body is without any influence on the acetonuria. In severe acetonuria acetic acid can always be detected.

(2) In those cases of diabetes in which the greater part of the carbo-hydrates taken as food is not oxidized, there is frequently a high degree of acetonuria in spite of the carbo-hydrates taken. The acetonuria in such cases can be lessened only by the use of very large amounts of starch foods, or by the addition of glycerine to the diet. Some patients who die of diabetic coma develop an increase of acetonuria with the failure in strength.

(3) Diabetic acetonuria is the only one known. In all diseases fever, carcinoma and diseases of the stomach) in which acetone is found in increased amount in the urine, the condition is caused by too litttle starchy food. In all such conditions the use of starchy foods, or food containing sugar, will cause a disappearance of the acetonuria.

Spasm of the Glottis and Tetany.

Kassowitz (*Wiener medicinische Wochenschrift*, No. 17, 1893) holds that laryngismus stridulus is almost exclusively observed in children who have cranial signs of rachitis. In such infants the ossification of the anterior fontanelle is retarded and the cranium shows the other characteristic signs of rickets. In the acute stage the spasm of the glottis is most frequently seen. Such children are subject to insomnia, terrors and tetany. All these signs disappear upon the administration of phosphorus. The author considers phosphorus as a specific in this condition.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Fixation of a Displaced Liver.

Richelot, in *L'Union Médicale*, August 5, 1893, gives the case of a woman, aged 28 years, who was admitted to his wards complaining for a year with pain in the right side and a tumor in the right iliac region. She had bilious vomiting and a little fever previously, and could not work. On opening the abdomen the tumor was found to be the enlarged and displaced liver which had become attached to the abdominal walls by inflammatory exudate. The adhesions were broken through, the liver pushed up, although it even then projected three finger-breadths beyond the ribs, and stitched fast to the abdominal walls with three catgut sutures which passed through the thickened capsule. There was no bleeding. The operation is the second which has been done, Gerard Marchant having done the first. Billroth and Tscherning fixed a floating lobule, but not the entire organ.

Vesical Calculi Accompanied by Unusual Symptoms.

Bazy, in *L'Union Médicale*, August 17, 1893, gives four cases of stone in the bladder in which the symptoms were not of the ordinary type. The first case was a man, aged 65 years, who came complaining of a hydrocele, and who had had four attacks of hematuria during the past year. There were no other bladder symptoms; no pain and no increased frequency of urination, but three stones were removed by lithotrity. Case two had been operated on eleven years previously by Guyon. While apparently well, he was obliged to get up one night to urinate, and found the urine bloody. He rested abed the next day, but again had hematuria the following night. He then consulted the writer, who found a vesical calculus. The third case had difficult and frequent micturition and other symptoms of enlarged prostate, but never any hematuria. The fourth at times had typical symptoms of vesical calculus, but these would then disappear and he would be apparently well and could walk long distances. He never had hematuria. This stone was likewise successfully removed by lithotrity.

Hernia of the Bladder Complicating a Femoral Strangulated Hernia.

In *L'Union Médicale*, August 19, 1893, Demoulin describes a case of strangulated femoral hernia in which he operated. On attempting to isolate the hernial sac a projecting tumor was found to the upper and inner side of the neck. This being separated from the sac, it was found to consist of the prolapsed vesical walls which had been made to protrude by the traction which the operator had made on the hernial sac in order to free it previous to ligation. On ceasing traction, the prolapsed vesical wall, forming a swelling the size of a pigeon's egg, returned of its own accord. The operation was then completed by ligating the sac and suturing the femoral opening shut.

Tuberculous Typhlitis and Appendicitis.

Richelot, in *L'Union Médicale*, July 4, 1893, p. 17, after referring to the recent article on tuberculous disease of the cecum by Reclus, and agreeing with it, points out the fact that he (Richelot) had previously called attention to it and submitted clinical proofs and operative details to the Société de Chirurgie in March, 1892. He calls attention to the fact of these tubercular lesions having been overlooked by English and American surgeons, who have simply regarded them as ordinary cases of appendicitis. He divides them into two classes, one being strictly circumscribed, while the other involves a greater extent of both large and small intestines. For the former, excision of the tubercular focus and suturing shut of the resulting gap in the intestinal wall is advised.

The Surgical Treatment of Cervical, Thoracic and Abdominal Aneurism.

In the *Annals of Surgery*, September, 1893, Nancrede submits the following conclusions: Cervical aneurism: (1) All methods should be supplemented by recumbency and diet. (2) Proximal compression, when feasible, should always be tried, and where the arterial coats are seriously diseased should supercede ligation. (3) "Needling" should supplement pressure when the case is progressing rapidly; possibly it is advisable in all cases suitable for compression, and is certainly to be employed where this method fails in cases with highly atheromatous vessels. (4) Proximal ligation, having been rendered much safer of late by the use of antiseptic precautions, less absorbent ligatures and the avoidance of all injury to the arterial walls by employing the "stay knot," is permissible when the walls are relatively sound until experience decides whether or not needling is superior in its results. (5) Since recurrence after proximal ligation almost certainly results from non-deposition of white thrombi, and their maintenance in contact with the aneurismal wall from lack of proper changes of its lining, "needling" is then clearly indicated. (6) Where the location prevents proximal arrest of the blood current, "needling" is the best operation; possibly distal compression—rarely feasible—might aid in the deposition of thrombi. (7) Although occasionally successful, the indications for the permanent introduction of such foreign bodies as wire, horse-hair, etc., into aneurismal sacs are so much better met by "needling" that such procedure had better not be adopted. (8) The modern revival of the older method of extirpation of aneurisms should not be attempted for spontaneous cervical aneurisms.

A Method of Making Intestinal Anastomosis.

In the *Annals of Surgery* of September, 1893, T. A. McGraw describes his method of making intestinal anastomosis. The difficulty heretofore experienced in this operation has been to make an opening which will remain patent. The tendency shown has been to a rapid contraction of the scar surrounding the hole so that obstruction is apt again to recur. To obviate this very large openings have been made, but these have been only partially successful, and the author now proposes to open the bowel by a cross incision, and then turning back the four angles to fix them by sutures. It is thus seen that the opening instead of having cicatricial tissues for its edges has a continuous ring of mucous membrane. Various shaped incisions are suggested, such as cross, H, and bracket or flap. The methods of operating are described as being not difficult, neither do they require the expenditure of much time, and it is believed that they will prove efficacious in the prevention of subsequent stenosis.

Enterorrhaphy: Its Treatment, Technique and Present Status.

In the *Journal of the American Medical Association* of August 12, 1893, N. Senn reviews the history of enterorrhaphy from the earliest times, and comments on the various methods. The Czerny-Lembert suture, if time permits its use, is safer than any of the single row methods. Gussenbauer's is too complicated. Bishop's suture tends to narrow the bowel too much. Cushing's "right angle" continuous suture is spoken of favorably. Halstead's quilt suture is more time consuming and more confusing to the inexpert surgeon. Objection is made to Kummer's method of excising a strip of mucous membrane, a half an inch wide around the divided ends, on account of the traumatism inflicted and the consumption of time. The recently described method of invagination of Maunsell is recommended to the careful study of surgeons, but a serious objection to it is the additional slit made through the walls of the intestine. The method of Harris, by invagination after denuding the intestine, is described, but regarded as a backward step; the method of Lembert of joining serous to serous surfaces being regarded as the proper one. The author's own method of circular enterorrhaphy, by the use of a rubber ring and catgut sutures, is then described. The use of the Murphy button is not regarded with favor, as he has knowledge of a number of cases in which the approximated parts were found completely separated at the post-mortem examination. The author (Senn) gives his own method of lateral approximation, and says he uses moist bone plates, kept between glass plates in an antiseptic solution, with a perforation at least three inches in length. Mention is made of the various segmented, catgut, rawhide, gelatine and vegetable plates, but he evidently prefers decalcified bone. The bobbin-like appliances of Littlewood, Sachs and Robson are mentioned and said to be worthy of a trial. Interrupted sutures are safer than continuous. Extravasation is best prevented by digital or elastic compression on each side of the wound. He does not believe in the abandonment of all plates, because he says they bring into contact large serous surfaces, and serve at the same time as splints for the injured parts.

Forcible Correction of Angular Deformity of the Knee.

In the *Boston Medical and Surgical Journal* of September 7, 1893, p. 242, is an elaborate and well illustrated article on the above subject by J. E. Goldthwait. The cases are grouped clinically as follows:

(*a*) Those that are seen during the acute or subacute stages of the disease, in which the deformity is maintained entirely by muscular spasm.

(*b*) Those in which there is complete bony anchylosis, as the result of extensive osteo-arthritis.

(*c*) Those in which the malposition is maintained by adhesions in or about the joint, as the result of old arthritic or peri-arthritic disease.

The last cases only are to be so treated. The instrument used is a modification of Bradford's. It consists of a Y-shaped piece of iron, the two branches going up on either side of the leg to the knee, where they are connected over the patella by a strap; additional straps fasten them to the ankle. The upper portion has attached to it a screw which connects with a strap passing around the posterior portion of the tibia just below the popliteal space. By turning the screw the subluxated tibia is dragged forward and then the limb forcibly straightened, Anesthesia is given and preliminary movements made to break up adhesions. In a mild case one application may be all that is required, while in others several applications (at one sitting) may be necessary before the position is entirely satisfactory. Sometimes the contracted hamstring tendons may be divided or the limb may be put up in a slightly contracted state for a week, after which the tendons will be found to have relaxed. Rotatory deformity is corrected at the same time as is the angular. The after-treatment is simple. A plaster bandage is at once applied and allowed to remain one or two weeks, after which the patient is permitted to go about on crutches with a plaster bandage or Thomas' splint. Pain is controlled by the salicylates or morphia. Five cases are given in which good results were secured. The method can be used in either rheumatic, gonorrheal or tubercular cases, an interval of two years being allowed in the latter. A protective appliance should be worn for six months to a year. It is stated that there is no danger to the vessels in this method of treatment.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Direct Electrization of the Stomach.

Einhorn (*Deutsche medicinische Wochenschrift*, Nos. 34–35, 1893) has employed direct faradization of the stomach in twenty-eight cases, including hyperacidity with dilatation, anadenia, obstinate gastralgia, chronic gastric catarrh, etc. The chemistry of digestion was always investigated. In all cases there was a very marked improvement or disappearance of the symptoms. In five other cases of gastralgia, however, so little improvement followed faradization that galvanism was employed. The sittings lasted ten minutes, and the faradic current was used only strong enough to cause contraction of the abdominal muscles. Under galvanism the five cases of gastralgia above referred to, and two other cases, were greatly benefited. The writer concludes that direct faradization is useful in most chronic gastric affections except cancer, and that its effects are quite evident and rapid in dilatation not dependent on obstruction, and that direct galvanism is efficacious in gastralgia which has resisted all other medication.

Salacetol in Diarrhea.

Bourget (*Correspond. Blatt für schweizer Aerzte*, No. 14, 1893) speaks highly of this remedy in the treatment of summer and choleraic diarrhea. The new compound represents the union of salicylic acid and acetone and possesses physiological and therapeutic virtues similar to salol. It appears as a white, crystalline powder, insoluble in water. It contains about 75 per cent. of salicylic acid, while salol contains about 60 per cent. It passes through the stomach unchanged, but in the presence of the alkaline secretions of the intestines is converted into salicylic acid and acetone. Salicylic acid appears in the urine within half an hour, and a dose of thirty grains is completely eliminated in twenty-four hours. The author believes it to be especially efficacious when given in a purgative oil, like castor oil, while the patient is fasting On account of the absence of phenol, salacetol is less dangerous than salol. Since adopting the remedy in summer diarrhea and kindred complaints, he has discarded bismuth, opium and similar remedies.

Acetic Ether as a Respiratory Stimulant.

Krautwig (*Centralblatt für klinische Medicinische*, April 29, 1893) has studied the action of this drug on the circulation and respiration of rabbits. Large doses proved dangerous when injected directly into the veins. Moderate doses doubled the respiratory capacity, the maximum effect being obtained in fifteen or thirty minutes, and the effect increases with the dose. Ordinary ether, on the other hand, first increases and then lessens the respiratory capacity, and paralyzes enfeebled centres more readily than sound ones. The injection of acetic ether was of great benefit in respiratory weakness brought about artificially with opium, while ordinary ether seemed still further to diminish the respiratory power. The permanency of the effect secured with acetic ether is especially advantageous, and is better than camphor. In moderate doses the remedy had no action on the heart or blood-pressure. The pure drug should be given subcutaneously, beginning with ½ c. c. and increasing the dose if necessary. The author concludes that acetic ether is superior to ordinary ether as a respiratory stimulant, and demands the same attention as camphor.

Injections of Iodoform in Goitre.

Kapper (*Gaz. de Hôp.*, September 2, 1893) uses a solution containing one part of iodoform and seven parts each of ether and olive oil, which is injected into the goitre after previous disinfection of the skin. The trocar of the syringe is disinfected, and is then plunged to the depth of two or three centimetres into the tumor, and the patient is told to swallow in order to ascertain whether the canula takes part in the movements of deglutition, or whether it has not been inserted deep enough. Immediately the solution is injected the trocar is rapidly withdrawn, and the orifice of the puncture closed by means of a piece of diachylon plaster. When the goitre is very large, he injects as much as six grammes of the solution at one sitting, in four different parts. The injections were repeated at intervals of four to six days, sometimes on several consecutive days. Local reaction was always feeble. Eight men and six women have undergone the treatment. After ten injections in the course of two months the circumference of the neck was diminished by six centimetres at least, and after another interval of two months there was a diminution of eight or ten centimetres. Besides this the discomforts felt by the patients were sensibly attenuated. Six months after cessation of the treatment the improvement was maintained.

THE ACTION OF CHLOROFORM ON THE RESPIRATION AND CIRCULATION.

HARE and THORNTON (*Therapeutic Gazette*, October 16, 1893), as the result of a series of experiments undertaken to reconcile some of the contradictory conclusions obtained by various experimenters with chloroform during the past few years make the following practical deductions:

We believe that there is no real antagonism in the beliefs that chloroform kills by depression of the heart or depression of the circulation. We, however, very positively assert that chloroform practically always kills by failure of the respiration when administered by *inhalation*, provided *that the heart of the anesthetized animal is healthy and has not been rendered functionally incompetent by fright or violent struggles, or, again by marked asphyxia.*

As positively as we assert that chloroform kills primarily by respiratory failure, so do we also assert that in excessive dose by inhalation it has a depressant effect on the circulation, which is chiefly due to vaso-motor depression, with final depression of the cardiac muscle itself. Depression of the cardiac muscle alone is never great enough to cause death when chloroform is given by inhalation, but we believe that gradual asphyxia, with the direct depression of the circulation, may do much toward producing a fatal result, for vaso-motor integrity is almost as necessary to life as an intact cardiac mechanism. This emphasizes the fact that we cannot afford to totally ignore the effect of chloroform on the circulation, and we cannot consider the patient in danger of circulatory failure *only* when respiration *ceases, but as soon as it becomes abnormal.*

Chloroform is anesthetic for the majority of cases, provided it is given by one skilled in its use and one who knows how to detect signs of danger. It is not so safe as ether, at any time, other things being equal, and never so safe in the hands of a tyro.

During its administration the respiration is to be watched rather than the pulse, because as soon as enough chloroform is used to endanger the circulation, the respiration will show some signs of abnormality, either in depth, shallowness, or irregularity. In other words, the very effect of the drug may be to cause such deep and rapid respirations that an excessive quantity of the drug is taken into the lungs and continues to be absorbed even after the inhaler is withdrawn.

Chlorofom is to be used in preference to ether in (1) hot climates (where ether is inapplicable) where a free circulation of air increases the safety of the patient; (2) chloroform may be used whenever a large number of patients are to be anesthetized, as on the battle-field, where only a small bulk of anesthetics can be carried; (3) its employment is indicated in Bright's disease, because, although more irritating to the kidneys than ether, very much less is required; (4) in cases of aneurism, or great etheroma of the blood-vessels, where the shock of an operation without an anesthetic would be a greater danger than the use of an anesthetic, chloroform is to be employed, since the greater struggles caused by ether and the stimulating effect on the heart and blood pressure might cause vascular rupture; (5) in children or adults who already have bronchitis, or who are known to bear ether badly, or, in other words, have an idiosyncrasy to that drug, chloroform may be employed.

Persons who are robust are in greater danger from chloroform than the sickly, because the struggles strain the heart and tend to dilate its walls. The safest method of administration is by Lawrie's or Esmarch's inhaler, because these provide free circulation of air and do not distract the attention of the anesthetizer from the respiratory movement by complicated apparatus.

Phenocoll Hydrochlorate in Malaria.

Cucco (*Therap. Monat.*, April, 1893) has employed phenocoll in eighty-four cases of malaria; of these it was successful in fifty-two, of doubtful value in twenty-one, and useless in four. Seven cases are still under observation. The remedy was given in doses of fifteen to twenty-two grains a day, with no untoward results, not even in a patient suffering with malarial albuminuria. He believes that the remedy will prove to be an excellent substitute for quinine.

Chloralose.

Ferrannini and Casaretti (*Rif. Med.*, August 11, 1893) draw the following conclusions from their experiments with this remedy. In animals large doses produce first a semi-paralytic stage with exaggeration of the reflexes, then a paralytic-hypnotic stage, and finally, after very large doses death preceded by convulsions. The heart and blood pressure are not altered directly by the drug, being only affected when the slowing of the respiration becomes very marked. The dominant action of the drug seems to be exerted on the cerebral cortex, inducing sleep; at the same time this effect is accompanied by general motor and sensory depression. The exaggeration of the reflexess appear to result rather from direct stimulation of the motor centres than depression of the inhibitory apparatus. Chloralose is very efficient in insomnia due to mental excitement; it is preferable to chloral in the insomnia of cardiac disease; it is better borne by the stomach than any other hypnotic, and is very effective in wakefulness resulting from disorders of digestion; in insomnia resulting from pain it is inferior to morphine and other analgesics; it has no cumulative action aud patients do not become quickly accustomed to it. It is a certain hypnotic in doses of two and a half to seven grains by the mouth, three and one-third to seven grains by the rectum, and five-sixths to one and two-thirds grains by the skin. When these doses are exceeded, toxic phenomena appear, similar to those observed in animals. If it is necessary to increase the amount, it should be done with extreme caution. In no case should the dose exceed eighteen grains, either by the mouth or rectum. The drug is also useful as a nerve sedative in chorea, hysteria and similar disorders.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D.,
FRANK W. TALLEY, M.D.

A New Case of Living Xiphopagus.

Baudouin (*Deutsche medicinische Zeitung*, 1892) described at a meeting of the Paris Academy of Sciences two girls aged 3 years and 2 months, who are united from the ziphoid cartilage to the umbilicus. Their birth occurred in the English Indies. Daserte described their production from germs developing parallel, in the same ovum, at a certain distance from one another. The surgical separation has been performed upon such monsters several times by Koenig with fatal result.

A Case of Eleven-Month Pregnancy.

Bensinger, of Mannheim (*Centralblatt für Gynäkologie*, No. 35, 1893), was called to attend a woman in labor who gave the following interesting history: Patient was 27 years old, IV-para, saw her menses for the last time in August; in beginning of September she experienced the *emesis gravidorum* and was pronounced pregnant by her physician. The time of her delivery was reckoned by the method of Nägel to be on May 17. She was seized with labor pains on the 3d of July. The abdomen was then distended to its maximum. The head, which was presenting, was large, and the bones of the skull appreciably hard. She was delivered without assistance on the 12th of July. The head was delivered easily, but the abnormally broad shoulders followed with difficulty. The placenta was very large and thick. The child weighed six kilogrammes and gave the following measurements:

Fronto-occipital diameter		12.75 cm.
Bi-parietal	"	10.25 "
Bi-temporal	"	8.75 "
Mento-occipital	"	15. "
Sub-occipito-bregmatic diameter		10.5 "
Circumference of the head		37.5 "
Shoulders	transverse	18. "
	circumference	43. "
Breast	transverse	12. "
	circumference	36. "
Hips	transverse	12.5 "
	circumference	36. "

Uncontrollable Vomiting in Pregnancy.

Blanc (*Archives de Tocologie et de Gynécologie*, June, 1893) refers to the unfortunate position in which the practitioner is placed when in charge of a patient with uncontrollable vomiting during pregnancy. If performed too early, induced labor involves the destruction of a fetus which might have lived. If too late, after great emaciation, syncope and delirium have set in, the patient's death may be deferred for a very short time, or even hastened. The uterus cannot be made to contract in these advanced cases. Hence it must be emptied of its contents. Blanc attended a lady in her third pregnancy. The first had been normal, the second ended by spontaneous abortion at the fourth month, after uncontrollable vomiting. On this occasion the patient had reached the third month of pregnancy. The vomiting was very severe, there was fever, and the least movement produced faintness. Cerium, cocaine, ice, champagne and chloroform-water had all proved of no service. A laminaria tent was introduced; it set up contractions which soon passed away. Next day another tent was passed into the uterus. A day later a long strip of iodoform gauze was passed into the uterine cavity. At the end of twenty-four hours no contractions had occurred and the patient was delirious. She was placed under ether; then the uterine cavity was scraped thoroughly, and the fetus, placenta and membranes removed by means of the curette. A plug of iodoform gauze was packed into the uterus after irrigation with bichloride-of-mercury solution. Subcutaneous injections of caffein and ether were then given. By the next morning the delirium had passed away, and the patient could take a few cups of cold milk and soup and a little champagne. At the end of two weeks she was restored to health.

Sporadic Scarlatina in Childbed.

Schramm (*Centralblatt für Gynäkologie*, No. 29, 1893) describes an instructive case. A healthy primipara, aged 24, complained of feverishness on the second day after delivery, and had a sore throat. Two days later there was marked angina, the lochia were odorless, the abdomen soft, and the genitals free from any sign of inflammation. A typical scarlatinal rash then appeared on the abdomen and spread on the next day all over the body. The "strawberry tongue" was present. Delirium and high temperature set in and lasted for several days, and on the tenth day desquamation occurred. The patient ultimately recovered. Olshausen states that angina is trifling in puerperal scarlatina. In this case it was very severe. The absence of peritonitis and inflammation of the genital tract contra-indicated septicemic rash. The source of infection could not be traced. Neither the accoucher nor the midwife had recently attended a case of scarlatina, and no cases occurred in the neighborhood about the time of the lying-in. She had never suffered from scarlatina nor measles before.

The Late Birth of a Child Weighing Fourteen Pounds.

Harris, of London (*Lancet*, July 10, 1892), reports the following case: Patient was a VI-para. Menses ceased on the 17th of July. In August she was separated from her husband. The labor, which was expected toward the close of April, occurred on the 7th of June. The head was delivered with ease. The extraction of the shoulders was accompanied with great difficulty, the child dying during the procedure.

The weight of the child was fourteen pounds.
Length, 67.6 centimetres.
Circumference of breast, 42.5 centimetres.
Circumference of leg, 23.7 "
Circumference of arm, 15 "
The length of the pregnancy was 325 days.

GYNECOLOGY

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D., AND CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D. AND H. D. BEYEA, M.D.

The Indications, Technique and Results of Adnexa Operations.

Schanta (*Archiv. für Gynekologie*, No. 44, 1893), at the Breslau Gynecological Congress of May, 1893, gave a resumé of his cases of inflammatory diseases of the tubes. Of 6315 gynecological cases treated in his clinic, 1130 (17.8 per cent. were of this class. As regards the diagnosis, he believes in the sign of Martin, or thickening of the tube isthmus, and also believes the bacteriological examination of the contents of the tube during the operation is most important,

since neither the history given by the patient, the result of a gynecological examination nor the temperature relation can give us any knowledge as to the pus. That a patient has fever preceding operation is insignificant as regards the pathogenic or non-pathogenic contents of a pyosalpinx. To corroborate this he gives the following statistics: Of 134 cases under his observation, 112 were non-febrile and 22 febrile. From the 112 without febrile symptoms 88 contained sterile or no pus, in 15 gonococci and 9 streptococci or staphylococci were found. Of the 22 febrile patients, 13 tubes contained sterile or no pus, in 3 gonococci, in 5 streptococci or staphylococci and in 1 coli commune were found. It is, therefore, apparent that the tube contents may be sterile and the patient have fever, and sometimes high fever, since in four cases the temperature was 100.2°–103.5°. The highest temperature observed for several days where streptococci or staphlococci were found was 98°–99.6°. The cause of fever is not due to pathogenic organisms, as might be expected, since only 6 times in 22 cases were these organisms found, and also of the 112 non-febriles 9 showed streptococci or staphylococci. As a result of these observations, and because of many sad experiences in the past, Schanta believes the microscopic diagnosis of the contents of pus tubes should be definitely made during the operation, and the following technique accordingly modified. The treatment of inflammatory disease of the uterine adnexa is naturally conservative or radical. The conservative should be applied where the symptoms are not imperative and the anatomical relations are such as not to demand radical treatment. The treatment of these cases by massage is applicable only where the swelling is small, the tube being not larger than a straw, or where there is no collection of pus. Cases where neither massage nor the radical treatment is indicated should be treated symptomatically. In those associated with catarrh the treatment should be limited to douching or systematic baths. Intra-uterine cauterization, intra-uterine douches or galvanism do much harm in these cases. The indications for the radical treatment are a collection of pronounced symptoms with undoubted anatomical changes. It is impossible for a tube chronically inflamed, as large as a finger, to regain its normal size. True, cases of hydro- and pyosalpinx may empty themselves and become much smaller, but the old condition returns in a short time. It must be remembered that operations upon the peritoneum are highly dangerous, although improved technique and asepsis has reduced the mortality to a minimum, unless we separate the adnexa operations, for in these cases we have to do with the removal of organs, and in a large number we must care for a suppurating process from which the pus may cause much trouble in the abdominal cavity. We must differentiate between cases in which sterile or no pus is found, between those in which gonococci and finally between those in which streptococci or staphylococci are found. When the pus contains no organisms the case may be treated indifferently, as though nothing abnormal had been found. It is questionable whether gonococci pus is surely always harmless in the peritoneal cavity. He believes they may do harm, and in confirmation of this relates two cases in which the bacteriological examination showed undoubted gonococci in the tube pus, and at the post-mortem, the patients dying of purulent peritonitis, gonococci were again found in large number in the peritoneal pus. These two cases would be positive proof had gonococci alone been found. Since, however, no other organisms besides the gonococci may be found at the time of operation, yet in the peritoneal pus at the post-mortem other organisms (staphylococci) can be found, therefore the question arises whether accidental infection may not occur, perhaps in faulty opening of the abdominal cavity at the post-mortem, or at the time of operation, while the

latter seems highly improbable owing to the conditions attending the operation, and also because of the fact that it then would have been conceivable if the peritoneal pus had contained staphylococci but no gonococci. He says although the latter existed in great excess, he cannot offer proof that through gonococci pus lethal peritonitis can result, and it is obvious that the decision of this question can only be answered by further observation.

That streptococci or staphylococci, as the rarely seen pneumonococci, is harmful to the peritoneum, can scarcely be doubted. Undoubtedly there are individual differences as regards the pathogenesis of bacteria, resorbtive power of the peritoneum, and disposition of the individual. He believes it is clearly demonstrated, since cover-glass preparations have been made during every operation in his clinic since October, 1890, and the following technique accordingly modified: That where streptococci or staphylococci are found, the patient's life is in danger. He divided the operations upon the adnexa into three groups—first, where the tube contains no pus, and, therefore, the discharge of pus is not to be feared; second, those cases in which the collection of pus is very large, and the abscess is in relation with the vaginal vault or abdominal wall; and third, the intermediate cases in which the abscess is not larger than an orange. The first group of cases are treated in the usual manner, the adnexa freed of its adhesions, the ligamentum latum completely freed, and the ligaments are ligated by means of overlapping interrupted sutures. He has learned through experience that where the sac is large and contains pathogenic organisms, and where there are extensive adhesions, it is impossible to remove the sac unruptured, and also, since the pus is in very large quantity, it could not be prevented from infecting the abdominal cavity, that, therefore, the operation should be conservative. Dependent upon the bacteriological examination, is the operation conservative or radical. He supposes an instance of large pyosalpinx in relation with the abdominal wall. The abdominal cavity is opened, both adnexa examined, and if, besides the large abscess, there is a less progressed disease on the opposite side, it is first removed. The parietal peritoneum, after adhesions to the intestines and omentum have been removed, is then sutured to an appropriate place on the superior surface of the large pyosalpinx, and the rest of the abdominal wound is closed by sutures, including peritoneum, fascia and skin. The abdominal cavity is thus closed. A drop of pus is then aspirated by means of a fine trocar (Potain's instrument), and a cover-glass preparation is at once made. If the pus is sterile or contains gonococci, the sac is opened, emptied and washed out. The abdominal cavity is reopened and the sac completely removed. If, however, the pus contains streptococci or staphylococci the operation is discontinued and the area of operation covered with iodoform gauze. When the parietal peritoneum has formed adhesions to the sac wall, usually after five days, the sac is opened and drained. The third group of cases, those in which the abscess is not larger than an orange, are treated similar to the first, by ligating the pedicle and removing, being careful not to rupture the sac. By very slowly and carefully removing the growth under control of the eye, this may frequently be accomplished. In many instances the rupture of the sac cannot be avoided, as where the ostium is adherent in Douglas' pouch, but the amount of pus is not so great but that it can be immediately removed with a sponge, and also, before beginning the separation of the ostium, the pelvis should be elevated, the intestines displaced towards the diaphragm and covered with aseptic pads, thus preventing infection beyond Douglas' pouch. The examination of the pus should be made as said, and if the pus is sterile or contains gonococci the abdomen is regardlessly closed; but if streptococci or

staphylococci are found the field of operation should be drained through the abdominal wound by means of iodoform gauze, after the method of Mikulicz. The advantage of this form of drainage is that it removes all secretions, and thus leaves no culture medium for pathogenic organisms. Also, more important, it brings about rapid adhesion of the surrounding peritoneum, through which the rest of the peritoneal cavity is closed from infection. Besides these cases, drainage is requisite in difficult operations with injury to the intestinal peritoneum, as the intestinal wall itself, in order to govern the escape of intestinal contents where the suture fails; therefore, where the abscess has ulcerated into the intestine or vagina. The results of his operations are shown in the following tables:

THE RESULT OF THE OPERATION WHERE THE TUBE CONTAINED STERILE OR NO PUS.

No. of Cases.	Recovered.	Died.	Final Result.		
			Recovered.	Improved.	Died.
144	140	4 (2.8 per cent.)	81 (83.5 per cent.)	12	4

RESULT OF THE OPERATION WHERE GONOCOCCI WERE FOUND.

No. of Cases.	Sac Unruptured.		Sac Ruptured.		Final Result.	
	Recovered.	Died (Phthisis)	Recovered.	Died (Peritonitis).	Recovered.	Improved.
33	15	1 (6.2 per cent).	15	2 (11.7 per cent.)	17 (94.4 per cent.)	1

Mortality, 9 per cent.

RESULT OF THE OPERATION WHERE STREPTOCOCCI OR STAPHYLOCOCCI WERE FOUND.

No. of Cases.	Sac Unruptured.		Sac Ruptured.				Final Result.		
			Drained.		Not Drained.				
	Recovered.	Died.	Recovered.	Died (Intest. Perfor'n)	Recovered.	Died. (Peritonitis.)	Recovered	Improved.	Died.
15	4	....	5	1 (16.6 per cent).	3	2 (40 per cent.)	....	....	...

Mortality, 20 per cent.

THE INTRA-UTERINE TAMPON.

ANDREW F. CURRIER (*Annals of Gynecology and Pediatry*, October, 1893) remarks that while the vaginal tampon is often an indirect and unsatisfactory means of relieving uterine trouble, the intra-uterine tampon goes directly to the source of trouble, and its employment has opened a new field in intra-uterine therapeutics. The best material for such a tampon is sterilized gauze. The tampon may

be employed in the impregnated and puerperal uterus, and also in the unimpregnated uterus. In the impregnated uterus the intra-uterine application of the tampon may be made in preference to the vaginal application to bring on uterine contractions and empty the organ, or in some instances to ward off an abortion. It is of service in placenta previa, and is to be preferred to bougies, bags and tents for the purpose of inducing abortion in cases of uncontrollable vomiting or other serious conditions. During parturition, it may be of service in assisting dilatation when the first stage is protracted. Post-partum it is useful in controlling hemorrhage; also for hemorrhage after an abortion, or for sepsis, after curettage and irrigation have been performed. In the unimpregnated uterus there is opportunity for its employment in causing dilatation for the purpose of exploring the uterine cavity in order to examine the nature and attachments of new growths. For the menorrhagia which frequently is seen in young women, associated with anemia, the use of the tampon, which makes direct pressure upon the vessels of the uterine cavity, is excellent. The many conditions of the endometrium which are associated with bleeding are improved by the use of the intra-uterine tampon packed firmly in the canal and up to the fundus, thus causing firm contraction of the uterine muscle, and favoring free depletion. Thus it will be serviceable in endometritis, with hypertrophy or suppuration, in inertia of the uterus and stasis of the venous circulation. It is valuable after dilatation for stenosis and it may be helpful in effecting drainage of the Fallopian tube in a limited number of cases. As a rule it is better to have the patient in bed and at rest at the time of introducing the tampon, and in some cases an anesthetic may be necessary. It is quite safe and proper to introduce it in many cases at the office or dispensary, particularly if it is not passed much beyond the internal os. Dilatation, curettage and irrigation should usually precede its introduction, and the canal be dilated sufficiently to allow of the ready introduction of the gauze strips of which it is composed. The tampon may safely be retained from one to three days, although it is better to renew it frequently and secure gradual dilatation rather than pack in too much at first.

The Causation of the Diseases of Women.

The American Gynecological Journal for August, 1893, contains an abstract of a paper upon this subject by Charles P. Noble. The principal causes of the diseases of women are arranged under the following headings: (1) Improper development of the sexual organs. (2) Gonorrhea. (3) Septic inflammation following child-birth. (4) Lacerations due to child-birth. (5) Miscellaneous causes, including constipation, erroneous habits of life, and errors of dress. Under the first heading attention is called to the necessity of more careful advice from the physician regarding the establishment of normal menstruation at puberty. The temporary withdrawal from study or other taxing duties will enable girls of this age to acquire more perfect development of the sexual organs. Out-of-door exercise, nutritious food, and the use of tonics will greatly benefit them, and tend to prevent dysmenorrhea and sterility on the one hand, and lacerations and degenerations on the other.

Gonorrhea is one of the most important causes of the diseases of the uterus, tubes, ovaries and peritoneum. The exact percentage of cases of diseases of the appendages due to gonorrhea is not yet known.

Puerperal infection is a most frequent cause of disease, and this is considered by some as the most frequent cause of disease in the female sexual organs. The

relative frequency of gonorrheal infection as compared with puerperal infection as a cause of inflammation of the uterus and its appendages is still a question in dispute. There is reason to believe that in some cases of inflammation following puerperal infection, the gonococcus may have been present in the parturient tract and have caused the trouble, while the infection may have been attributed to other agents. The relations of lacerations of the cervix to subinvolution of the pelvic organs and of tears of the pelvic floor to rectocele, cystocele and prolapses of the uterus are well known. Constipation, constriction of the waist by the abuse of the corset, and the hanging of heavy skirts about the hips, together with the many unhygienic and enervating habits of women, contribute to cause disease of the sexual organs. In conclusion the writer would call the attention of the general practitioner to the fact that the diseases of women are largely preventable and that by careful oversight of the girl as she approaches the age of puberty; by vigorous treatment of gonorrhea and observation of the case until all abnormal discharges are arrested and sexual intercourse prohibited until the disease is controlled; if antiseptic midwifery is practised and lacerations are united promptly, and attention be paid to the prevention of constipation, the ill effects of improper dressing and erroneous habits of living, the prevalence of the diseases peculiar to women would be greatly restricted.

Gonorrheal Salpingitis.

Walton (*Centralblatt für Gynäkologie*, No. 39, 1893), in a very complete monograph on this subject, refers to a latent form of gonorrhea, where the organism is saprsphytic, and which exists in the male as well as the female. This latent organism, through an exciting cause, where a favorable culture medium is present, manifests itself, and thus it is that in the female the different uterine and adnexia inflammations are brought about. A pyosalpinx is commonly caused by a mixed infection of gonococci and pyogenic organisms, and this mixed infection can only be found early in the case, since the gonococci are later overpowered by pus cocci. The gonococci tend to migrate from the vagina into the cervix, and thence into the uterine cavity. The tubes are infected by uterine contraction or some therapeutic measure. German statistics show 23 to 28 per cent., and English and American 70 per cent. of all cases of adnexia disease to be due to gonorrhea. The inflammation always extends to the ovary, and may cause here a variety of conditions, from an oophoritis to an abscess, and, also, salpingitis is always associated with perimetritis, *i.e.*, the inflammation extends through the tube-wall, causing a perisalpingitis, or else direct through the tube (ostium abdominalis) infecting the peritoneum, and at times causing general peritonitis. Usually the inflammation does not extend beyond the broad ligament, or where there is a pyosalpinx it may infiltrate between the two peritoneal layers of the same. The entire tube is never involved, but the inflammation is limited to the outer two-thirds, where the mucous membrane folds are more complex, and the growth of the micro-organisms more favorable. Walton believes these cases should be treated antiphlogistically at the beginning, and later by hot irrigations (109⅔° to 113° F), followed by an iodoform or ichthyol-glycerine tampon. He follows the operative technique of Lawson Tait, except where there are numerous adhesions. If hemorrhage, or the pus has escaped into the abdominal cavity, he irrigates with warm water at a temperature of 104° F., where Tait uses water at 98 3-5° F. In these cases he also uses a glass drainage tube.

PATHOLOGY

UNDER THE CHARGE OF
JOHN GUITÉRAS, M.D.,
ASSISTED BY
JOSEPH McFARLAND, M.D.

Tuberculosis in the Dog and Cat.

Eber (*Deutsche Zeitschrift für Thiermed. und vergleichende Pathologie*, Band XIX, Heft 2 and 3). This investigator made autopsies upon 400 dogs and 100 cats to discover whether tuberculosis was present, and found it in eleven dogs (2.75 per cent.) and one cat. The anatomical diagnosis was in every case established by microscopical examination for the tubercule bacilli. In nine of the eleven dogs the lung was the organ chiefly affected. The disease manifested itself in eight cases in the form of chronic indurating broncho-pneumonia with central softening of the newly-formed tissue. There were also complications in the form of chronic bronchitis with bronchiechatic cavities, as well as pleurisy, pericarditis and hydropic collections. The bronchial and mediastinal lymph-glands showed only in two cases distinct tubercle formation; in the remaining cases they were hyperplastic only, or showed no changes. No changes were demonstrable in the mucous membrane of the intestines. The product of tuberculosis in dogs shows a peculiar sarcoma-like condition, in which were numerous soft masses, containing pure cultures of tubercle bacilli. In the cat chronic tuberculosis of the lungs and related lymph-glands was observed. Eber shows by this that the distribution of tuberculosis in the dog and cat is not everywhere as great as in Copenhagen and in Denmark generally.

The Pathological Effects of Certain Substances Derived from the Spleen in Cases of Scarlatina.

Bokenham and Fenwick (*British Medical Journal*, August 19, 1893), in a paper read before the Sixty-first Annual Meeting of the British Medical Association, report upon the examination of fifteen spleens from cases of scarlatina. The spleens were removed as soon after death as possible, were freely incised and placed in strong alcohol. When received in the laboratory they were passed through a mincing machine and reduced to a fine pulp which was allowed to remain in contact with the spirit for some weeks. By these means all globulins and nucleo-albumins were coagulated and rendered insoluble. The spirit was then separated, the residue pressed and all the liquid portions, after filtration, were concentrated to a small bulk (an almost syrupy consistence) in a large vacuum apparatus on the principle of Liebig's condenser, so arranged as to be capable of independently concentrating six specimens at one time. The solid residuum of the organs was treated with sterilized distilled water in successive portions, extraction being each time assisted by placing the mixture for some hours in an automatic shaker. When nothing more could be extracted in this manner the liquids were united and concentrated to a small bulk in the same manner as the spiritous extract, In this process the vacuum apparatus attached to the condensers allowed the liquids to boil at a temperature below 40° C., this being advisable until it was known whether or not the heat injured any toxines which might be present.

All of the concentrated liquids were then thrown into at least ten times their volume of absolute alcohol. In every case a more or less bulky whitish or yellow precipitate fell, in most cases having a greater or less tendency to adhere to the sides of the bottle. After being allowed to remain under the alcohol for some weeks, the precipitate was separated, washed in alcohol, dissolved in a small quantity of water and again thrown into absolute alcohol. By repeating this process several times the precipitate was in great measure purified. It was then dried *in vacuo* and preserved in stopped bottles. In its final stage it was a yellowish or whiteish powder, deliquescent, of either neutral or slightly alkaline reaction, readily soluble in water, but insoluble in alcohol, ether or chloroform.

Control experiments with normal spleens were also done.

The animals experimented upon were rats, guinea-pigs, mice and rabbits, those only being selected which had been for some time previously under observation. In every case daily records of weight and temperature were kept and compared with similar records of control animals. The injection of the experimental substance dissolved in a few cubic centimetres of water seldom caused any local trouble. At the most a little pus was found at the site of inoculation in one or two instances. Although the material was given in doses varying from 0.05 gramme to 0.4 gramme per kilogramme of body weight, the description given refers solely to cases in which the dose was 0.1 per kilogramme.

The toxic symptoms produced began in one-half hour. The respiration increased in frequency; the gait became tottering and extremely unsteady; paresis of the hind legs came on. The respirations became very slow and labored, the accessory muscles of the nose and mouth being called into requisition. Within a half hour from the onset the animal passed into a state of profound collapse. The heart's action was weak, its action quick and the surface of the body cold to the touch. After a variable period of time recovery took place and the symptoms all ameliorated.

In all cases more or less pyrexia was produced.

The poison seems to be excreted by the kidneys, as marked inflammatory changes in the kidney were observed.

The writers are of the opinion that the rapidly fatal cases of scarlet fever are due to this poison.

DERMATOLOGY

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

ASSISTED BY

M. B. HARTZELL, M.D.

The Nature of the Vernix Caseosa.

Wallace Beatty (*British Journal of Dermatology*, July, 1893), having had the opportunity to examine the scalp of a new-born infant, found that the vernix caseosa is the product of the sebaceous glands, and is not, as Unna maintains, derived from the sweat glands. In osmic acid-stained sections the blackened fatty layer on the surface of the skin is continuous with the blackened fat in the hair follicles and sebaceous glands.

A Case of Herpes Zoster Universalis.

Colombini reports (*Commentario Clinico delle Malattie Cutanee e Genito-Urinairie*, Nos. 1, 2, 3, 4, 1893) a remarkable case of zoster in which the eruption was universal, following the cutaneous nerves of the whole body. The patient was a man 30 years of age who, three years previously, had had an attack of malarial fever lasting several months. At the age of 30 he had another attack of malaria accompanied by intense neuralgia, and a burning sensation all over the body. Within a week of the beginning of the malaria the zoster appeared. Besides the cutaneous eruption there were vesicles upon the conjunctiva, the nasal, oral and anal mucous membranes.

Tuberculous Eczema.

Eddowes calls attention(*British Journal of Dermatology*, September, 1893) to a form of eczema which is, in his opinion, due to the tubercle bacillus. This variety of eczema may be found alone as a distinct lesion, or on patients who have typical lupus vulgaris, mixed up with the lupus patches. This form of the affection is illustrated by the case of a little girl with phlyctenular conjunctivitis of the right eye. Around the eye and over nearly the whole of the right cheek was a characteristic tubercular eczema. The cheek was red, dry, coarsely desquamating. The affection was remarkable for the absence of itching and for its fixed character and chronicity. On the wrist was a patch of verrucose lupus. On the right elbow tip was a small circular patch of dry, red, exfoliating eczema like that upon the face. The author regards it as significant that the patient was in the habit of steadying her right upper eyelid and shading her eye with that part of the wrist corresponding to the central part of the lupus patch.

Massage in Diseases of the Skin.

In a paper read before the Section for Dermatology of the British Medical Association (*British Journal of Dermatology*, September, 1893), Eccles considers the effects of massage in cutaneous diseases. The effects of massage upon the skin vary with the character of the manipulation. Light friction produces relaxation of the vessels and warm redness. With firm rubbing loose epithelium is removed, the contents of the sebaceous follicles is expelled, dilatation of arterioles, insensible perspiration, and sometimes sensible sweating ensue; lymph vessels are unloaded, and venous circulation is greatly stimulated. Rolling and squeezing produce increased vascularity of the part, and absorption by blood and lymph vessels is accelerated.

Light friction reduces surface temperature; firm friction, kneading and rolling increase it. Upon the cutaneous nerves light friction produces no perceptible effect. Firm friction increases tactile sensibility, and improves local sense. Kneading immediately decreases both; it also reduces temperature sense for heat, less so for cold.

It is in lesions characterized by the accumulation of inflammatory products in overloaded lymph spaces, clogged lymphatic channels, and blocked glands, that massage proves most certainly valuable.

In scleroderma and psoriasis mechano-therapy has been useful, while in examples of various forms of vaso-motor enfeeblement and cutaneous neuroses, *e. g.*, pruritus, anidrosis, and alopecia, the effects of treatment were more or less marked. In acne and comedones dry massage was most efficacious.

Pyodermatitis.

Under this designation, Leloir (*Journal des Maladies Cutanéo et Syphilitiques*, No. 7, 1893) considers those affections of the skin which arise from the inoculation of the agents of suppuration.

These agents of suppuration may reach the skin from the interior by a process of elimination, hence called by the author "pyodermatitis by elimination," examples of this being the follicular inflammation, the boils, the abscesses which frequently occur during convalescence from the infectious diseases. In a certain number of cases these suppurative lesions are due to the growth of pyogenic microbes in the skin; in others it is the toxines formed by these microbes that are the direct cause of the inflammation; while in a third group of cases it is through impairment of the resisting power of the cells by toxines that suppurative accidents arise.

Direct inoculation from the outside, however, is much more frequent than from the interior. The patient may be himself the bearer of the primitive focus of suppuration, such as a furuncle or an impetigo, or he may be inoculated by coming in contact with those who are the subjects of suppurative lesions.

More rarely the inoculation takes place through contact with clothing or toilet articles soiled with the agents of suppuration. In certain cases domestic animals may be the source of infection.

The diseases of the skin resulting from inoculation with the pyogenic organisms may be divided into two groups :

(1) Those produced primarily by the agents of suppuration dependent entirely upon these—pyodermatitis pure. Such are furuncle, anthrax, certain varieties of folliculitis, ecthyma, impetigo.

(2) Those affections in which the action of the agents of suppuration is superadded to some pre-existent pathogenic cause. As examples of this group may be mentioned impetiginous eczemas, eczemas complicated by ecthymas, furuncles, folliculitides.

Treatment of these inflammations should have two ends in view :

(1) The sterilization of the pyodermatitis.

(2) The prevention of further auto-inoculation by the fingers of the patient, by his clothing, etc.

The first object is to be obtained by the application of antiseptics, the second by isolation by means of occlusive dressings.

Erythème Induré des Scrofuleux of Bazin.

T. Colcott Fox calls attention anew (*British Journal of Dermatology*, August and October, 1893) to this affection, first described by Bazin in his "Leçons sur la Scrofule." The malady is characterized by the following features : The lesions are nodular in character; they arise in the hypoderm, and may remain deep-seated for a considerable time without projecting the overlying skin; sooner or later they involve the more superficial layers, the skin assumes a reddish hue, as in erythema nodosum, and later a violaceous tint. The size of the nodule on the legs is that of a pea or hazel-nut, but occasionally they become larger. On the fingers they are much smaller. As a rule, they are indolent in their course, differing in this respect from syphilitic and tuberculous gummata. They may undergo partial or comple involution, or they may suppurate or necrose *en masse*. Necrosis of the entire lesion produces punched-out, circular, or oval

ulcers resembling those produced by syphilitic gummata. The lower parts of the legs, especially the back and outer parts, are most involved. The majority of the author's cases occurred between the ages of 12 and 17, but in one instance a typical case was seen at the age of 48. The subjects of the malady are below the standard of health. Rest in the horizontal position, and methodical compression of the leg, are the most important curative influences.

MISCELLANEOUS.

DR. HUNT'S RESIGNATION FROM THE PENNSYLVANIA HOSPITAL.

Dr. William Hunt, Senior Surgeon to the Pennsylvania Hospital, has resigned, having served thirty years on the surgical staff.

Dr. Hunt was born in Philadelphia, on the 26th day of September, 1825. He received his education at a Friend's school, but on account of ill-health did not pursue a collegiate course. In 1846 he commenced the study of medicine, in the office of the late Dr. George B. Wood, and graduated at the University of Pennsylvania in 1849. Shortly afterwards he was elected resident physician to the Pennsylvania Hospital, where he served for two years. In 1854 he was appointed Demonstrator of Anatomy in the University of Pennsylvania, by the late Dr. Joseph Leidy. By this relationship a most intimate friendship sprang up, which only terminated upon the death of Dr. Leidy, a short time since. He remained Demonstrator of Anatomy for a period of ten years.

About 1856 Dr. Hunt was appointed Surgeon to the Episcopal Hospital, in which capacity he served over twelve years. He was elected one of the attending surgeons to the Pennsylvania Hospital, in November, 1863, succeeding the late Dr. George W. Norris, and had completed a service of thirty years at the time of his resignation. He also served as visiting surgeon to the Wills Eye Hospital for ten years.

During the Civil War he was appointed Acting Assistant Surgeon in the United States Army. On several occasions he was ordered to the front for active field service, but principally served in the military hospitals of Philadelphia.

At the present time Dr. Hunt is a trustee of the University of Pennsylvania; a Fellow of the College of Physicians of Philadelphia; a member of the Philadelphia County Medical Society, and of the

Academy of Natural Sciences; President of the Philadelphia Academy of Surgery; and an Honorary Fellow of the American Surgical Association. He was for many years an associate editor of the "Annual of the Universal Medical Sciences," and has written numerous monographs on various medical subjects.

DR. JAMES TYSON ELECTED A VISITING PHYSICIAN TO THE PHILADELPHIA HOSPITAL.

At a recent meeting of the Department of Charities and Correction Dr. James Tyson was elected to the visiting staff of the Philadelphia Hospital.

NECROLOGY.

Hon. Dr. J. C. Phillippo died at his home in Kingston, Jamaica, on the 14th of November. He was in his usual health when suddenly seized with the symptoms of heart failure, which terminated immediately in death.

Dr. Phillippo was born in 1830, and was the son of the Rev. J. M. Phillippo, an Englishman by birth. After having received the degree of Doctor of Medicine from the University of Edinburgh, he established himself in Jamaica, where he soon acquired an extensive practice, and became interested in numerous philanthropic enterprises. In September of the present year, in company with the foreign delegates to the Pan-American Medical Congress, he visited the University of Pennsylvania, and drew everyone to him by his genial and courteous manners. No one met him there who was not charmed with his sturdy personality, and who did not at once become his warm friend. The speech he made at the reception, in the University Library, in response to the request of the Provost, was the brightest of the bright ones made on that occasion.

As a medical man it is acknowledged that no one in the West Indies was better informed than he in the diseases peculiar to the tropics. The great movements with which he was connected amply attest his kindness of heart and his capabilities as a leader in public affairs. As a physician, philanthropist and man of affairs, he won the respect and admiration of his professional colleagues and the love of his fellow-men of every class and condition.

BOOK NOTICES.

THE PRINCIPLES AND PRACTICE OF SURGERY. By JOHN ASHHURST, JR., M.D., Barton Professor of Surgery and Clinical Surgery in the University of Pennsylvania, Surgeon to the Pennsylvania Hospital, Philadelphia. New (6th) edition, enlarged and thoroughly revised, In one volume of 1161 pages, with 656 engravings and a colored plate. Philadelphia: Lea Brothers & Co., 1893.

This surgery has been before the profession so long, and is so well known that any description of the scope and general arrangement of the work seems unnecessary.

In the present edition a striking feature is the introduction of a new chapter on Surgical Bacteriology, written especially for this volume by Dr. Charles B. Nancrede, Professor of Surgery in the University of Michigan. The article is illustrated by seven colored plates from original drawings by Professor Nancrede.

All portions of the work have been revised and numerous additions made, and by the omission of many tables, which in this edition have been summarized, much valuable space has been saved. Although it is estimated that fifty pages of new matter have been added, by the better arrangement, the volume is extended but twenty pages. A number of new cuts have also been added.

The sections relating to Gynecology have been revised by Professor Barton Cooke Hirst; the chapters on Diseases of the Eye and Ear have been revised, as before, by Professors George E. de Schweinitz and B. Alexander Randall respectively.

Throughout, the work is conservative as heretofore, but those who are familiar with the previous editions will note with pleasure the more modern tone in portions of the present volume.

SYPHILIS: ITS TREATMENT BY INTRA-MUSCULAR INJECTIONS OF SOLUBLE MERCURIAL SALTS. By EDWARD COTTERELL, F.R.C.S., Eng., etc. London: John Bale & Sons, 1893.

This little brochure is a plea for the more frequent employment of intra-muscular injections of a soluble mercurial salt in syphilis. In the author's experience the sozoidal of mercury has proven the most satisfactory. The advantages and disadvantages of the different methods are briefly considered, and while the author does not recommend the exclusive employment of intra-muscular injections, he is convinced that in this method we have a very valuable therapeutic measure, which, while it has many advantages over the older methods of treatment, has very few disadvantages.

MINERAL SPRINGS AND HEALTH RESORTS OF CALIFORNIA. By WINSLOW ANDERSON, M.D., etc. San Francisco: The Bancroft Company, 1892.

This is a prize essay presented to the California Medical Society in 1889.

It purports to contain a complete analysis of the waters of all the important mineral springs in the world, besides the health resorts and springs of California. The remarks upon mineral waters and baths in general are good, while the very complete analysis of the different waters is certainly worth having at hand. Besides, there is much history of California which cannot, perhaps, be obtained in any other place. One cannot quite rid himself, however, of the thought that the book is perhaps what is a laudable effort, though not strictly medical, on the part of a patriot to "boom" the State of California. The State has doubtless unusual natural peculiarities, of which the author has certainly made the most.

MINOR SURGERY AND BANDAGING. By HENRY R. WHARTON, M.D., Demonstrator of Surgery in the University of Pennsylvania. In one 12mo volume of 529 pages, with 416 engravings, many being photographic. Philadelphia: Lea Brothers & Co., 1893.

The appearance of a second edition of this work within two years after the first was issued is a sufficient guarantee of its favorable reception by the profession. The author has taken advantage of the opportunity afforded to revise and add to the original work.

The subject is arranged under the following headings: I. Bandaging; II. Minor Surgery; III. Fractures; IV. Dislocations; V. Ligation of Arteries; VI. Amputations.

In the present edition the section on asepsis and antisepsis has been revised and extended. Details are given for carrying out an aseptic operation as well as for the preparation of sterilized sponges, sutures, dressings, etc., required in the after-treatment of the wound.

An especial feature of this work consists in the large number of excellent cuts.

Dr. Wharton has very faithfully considered the subjects indicated in the title.

THE MEDICAL NEWS VISITING LIST, 1894. Philadelphia: Lea Brothers & Co.

This list is so widely and so favorably known that a new edition of it requires no extended comment. Its compactness and simplicity are such as to indicate that the highest point of perfection has been reached in works of this class. In addition to the ordinary features of a visiting list it contains useful and accurate tables relating to weights and measures, urinary analysis, eruptive fevers, doses, incompatibles, poisons and antidotes, therapeutics, ligation of arteries, etc.

LESSONS IN PHYSICAL DIAGNOSIS. By ALFRED M. LOOMIS, M.D., LL.D., Professor of the Practice of Medicine and Pathology in the University of the City of New York. Tenth Edition. Revised and enlarged. New York: William Wood & Co., 1893.

The fact that this work has already passed through ten editions is a strong indication of its favorable reception by the profession. The author has materially improved the present edition by re-writing the section on the "Physiological Action of the Heart," and the lesson on the "Examination of the Urine." A new lesson on clinical microscopy has been added, including the examination of blood, sputum, urine, vomit and feces. The investigation of the various secretions and excretions of the body assists so much in the recognition of obscure diseases that this consideration in a text-book of this kind is highly commendable, but in this instance the subjects have been treated in such an elementary manner that we fear little has been added to the practical value of the book. There are many excellent illustrations.

HANDBOOK OF THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE THROAT, NOSE AND NASO-PHARYNX. By CARL SEILER, M.D., Instructor in Laryngology and Lecturer on Diseases of the Upper Air-passages in the University of Pennsylvania; Chief of the Throat Department at the University Hospital; Physician in-chief of the Union Dispensary. Fourth edition, in one volume of 412 pages, with 107 wood engravings, ten figures and two lithographic plates. Philadelphia: Lea Brothers & Co., 1893.

The fourth edition of this work retains the features which have made its predecessors acceptable. The additions in this edition consist in a chapter upon neoplasms, another upon uterine reflex laryngitis. In this section the author points out his ability to "diagnose the presence of uterine trouble merely by inspection of the larynx and pharynx," but expresses his inability to describe or picture the changes present more clearly than by saying: "There is a bluish-reddish hue of the mucous membrane of the larynx and pharynx, which somewhat reminds us of the atmosphere of a clear sunset in the fall of the year" (p. 192). It is of further interest to note a differential point expressed by the author that, "I have found that when the condition referred to is more pronounced in the larynx and pharynx, the cause is intra-uterine; while if it is more apparent in the upper pharynx and naso-pharynx, the cause may be looked for in the ovaries or tubes" (p. 191).

His article on "American Grippe" is in accord with his previous reports on the symptoms of the disease to which he has heretofore given thename "It."

The work is a useful handbook, but we cannot think the two chapters referred to will add to its value.

SYSTEM OF DISEASES OF THE EAR, NOSE AND THROAT. Edited by CHARLES H. BURNETT, A.M., M.D. Illustrated. J. B. Lippincott Company, 1893.

The publication of another "system" would indicate a demand for a class of works representing the combined thought and practice of teachers and practitioners of the special branches of medicine and surgery. Indeed, even the specialities have grown to such proportions that one man is incompetent to cover the entire field without borrowing extensively from the work of his co-laborers. The present work is divided into two parts, the first of which deals with diseases of the ear. William S. Bryant, Huntingdon Richards, Edward B. Dench, Robert Barclay, William Bartlett, Gorham Bacon, Samuel Sexton, Christopher J. Colles, Charles H. Burnett, Frederick L. Jack, Clarence J. Blake, Edmund D. Spear, Charles A. Oliver and Arthur H. Cleveland contribute articles to this section.

Part II deals with diseases of the nose and naso-pharynx, and the authors are Alexander W. MacCoy, Samuel G. Dabney, Clinton Wagner, Francke H. Bosworth, Carl Seiler, Ralph W. Seiss, John N. Mackenzie, George W. Major, E. Cresswell Baber and Joseph H. Bryan.

Turning to the chapter contributed by the editor, we find a most exhaustive and comprehensive treatise on chronic purulent otitis media. His urgent demand for thorough drainage is in accord with the only rational treatment of pus collections, and as one of the pioneers in the removal of partially destroyed membrane and carious osicles in order to give free vent, and to remove the cause of necrosed products, he exhibits a series of results which are a little less than brilliant, and which should go far toward making this method of procedure more popular than it is at present. In speaking of aural polypi and their removal, he states the base should be touched with chromic acid, silver nitrate being contraindicated because it stimulates and does not destroy granulations (pp. 427 and 437). This teaching is scarcely in accord with the general experience with nitrate of silver. The more frequent recognition of sinus thrombosis and cerebral abscess, and the success attending operations for their relief, lend special interest to this chapter.

The general practitioner will likely seek advice to guide him in the treatment of that large group of cases which he regards as hypertrophic rhinitis. In the treatment of this affection the writer gives a prominent place to the use of the spray, with little reference to the growing distrust with which many specialists regard this form of medication. In considering the use of the actual cautery to reduce hypertrophies, we regret that no definite suggestions are made as to the depth of cauterization. A word of warning in reference to the danger of producing lachrymal obstruction by the injudicious use of the cautery would also have been seasonable. The writer takes a safe and conservative stand in his treatment of adenoid growths in the pharynx, yet we cannot regard as necessary the tedious treatment of applications or curetting any more than we can look upon digital exploration of the post-nasal space as "very formidable," "exceedingly alarming" and "acutely painful."

Viewed as a whole, the work is entirely creditable, and the diversity of opinion manifested in some instances is, perhaps, a real advantage, and argues in favor of a system by a number of contributors, rather than a work by a single author. It is a book fully up to the times, and, indeed, in some instances, points the way to future practice. The specialist and general practitioner will each find in it much information that he desires. The value of the work is enhanced by numerous original and well-drawn illustrations.

A Manual of Medical Treatment or Clinical Therapeutics. Two volumes. By J. Burney Yeo, M.D., F.R.C.P., Professor of Clinical Medicine in King's College, London, and Physician to King's College Hospital. With illustrations. Philadelphia: Lea Brothers & Co., 1893.

In the first volume of this work are considered diseases of the organs of digestion, of the heart and blood-vessels, of the blood and ductless glands, and of the organs of respiration, excluding phthisis, and in the second, pulmonary tuberculosis, liver, kidney and nervous diseases, constitutional diseases, and specific infective diseases. It has been the author's aim, we are told in the preface, to deduce rational indications for treatment from an examination of the pathological nature, and the clinical course and characters of the disease, and for this reason a short account of the etiology, pathology and symptoms of the disease under consideration precedes the discussion of the therapeutic measures designed for its cure. Throughout the work full consideration has been given to the important role which bacteria play in the etiology of disease, and the therapeutic advances which recent studies in this field have instituted. The author speaks in no uncertain manner of the value of antiseptic remedies in affections of the alimentary canal, and in such infectious disorders as phthisis, typhoid fever, cholera, diphtheria and whooping-cough. We regret that the author's views on hydrotherapy in the continued fevers are not so sound, and that he regards this method of treatment as "much more appropriate to the rougher class of hospital patients than to the more sensitive organizations encountered in private practice." He further adds: "We have seen such very serious and lamentable results follow its application, in some of the latter class, that we should hesitate to sanction its use except in quite exceptional circumstances." This teaching is certainly at variance with the experience of American and German practitioners, who have employed this treatment.

Under the treatment of acute meningitis, aneurism and croupous pneumonia we find no reference to the value of venesection in certain types of these disorders. Sunstroke, acute alcoholism, and rickets have not been considered. The treatment of phthisis and chronic affections of the cardiac valves has been fully discussed, and will well repay a careful study. A commendable feature of the book is the prominence which is given to diet, hygiene, exercise and climate in the treatment of various diseases. The work in the main fairly represents the present status of applied therapeutics, and will doubtless be welcomed as a valuable addition to the literature on this important subject.

A Manual of Diseases of the Ear. By George P. Field, M.R.C.S., Aural Surgeon and Lecturer on Aural Surgery, St. Mary's Hospital Medical School, London. In one octavo volume of 391 pages, with seventy-three engravings and twenty-one colored plates. Cloth, $3.75. Philadelphia: Lea Brothers & Co., 1893.

The recent progress in aural surgery makes the appearance of this work timely. It has been the author's aim, so he states, to make the work represent what has come to be recognized as having established merit. His extended experience enables him to cite numerous cases illustrating the various stages and unusual phases of the conditions considered. In fact the plan of this work consists in a running history of cases carefully classified. In the treatment of inflammatory and suppurative middle ear disease he seems to prefer the "wet method" to the "dry method," which is probably regarded with more favor by American otologists. The colored plates are excellent, and the engravings, with few exceptions, quite good. The student will at times regret the absence of more explicit directions, but will doubtless recognize the impossibility of doing more than setting forth a general plan of treatment for diseases which present such various phases.

The typography is good and the errors few, and these quite apparent, as where on p. 210 the text has it "the valsava or other methods of inflammation," where inflation was doubtless intended. The work is thoroughly readable, and will creditably fill the sphere it was intended to occupy.

Normal Histology. By George A. Piersol, M.D., Professor of Anatomy in the University of Pennsylvania. Published by J. B. Lippincott Company, Philadelphia, 1893.

The hundreds of students who have listened to Dr. Piersol's lectures, and viewed with admiration his exquisite microscopic preparations, will express delight as well as satisfaction at receiving a text-book from a teacher so much admired. Nor will this work meet with a local fame only, for it supplies a much felt demand for a first-class text-book by an American author, and it does so in such a complete and satisfactory manner as to make it the peer among similar works in the English language—a *desideratum*, not only for the student, but also for the scholar. Without being an encyclopedia upon its subject, it fully and clearly sets before the reader all that is essential to a thorough understanding of normal histology, and does so in the same entertaining and attractive style which has for so long made Dr. Piersol's lectures so well attended.

No pains have been taken to conceal that much of the work of other authors has been incorporated in this, the author expressly stating in his preface, that Kölliker, Stöhr, Ranvier, Cajal and numerous others have been freely drawn upon. This, however, does not lessen his originality which is plainly manifested, not only in the text-book,

but also in the 358 original sketches which are not only diagrammatic when necessary, but are constantly faithful reproductions of that which the author sees and describes, and serve more than many pages of closely printed matter to increase the comprehensibility of his meaning.

The opening chapter, "The cell and the tissues," is excellent, the description of karyokinesis being well up to date.

As we peruse the chapters on the various tissues and organs, we find them uniformly good, with occasional evidences of originality as, for instance, the *guard cells* which protect the stomata of the endothelium, etc.

The chapter on the nervous system is most excellent, bringing the whole subject up to the most recent advances made by Golgi with his new methods of staining. The whole work is of high order and will meet with a warm reception whereever histological work is done.

TRANSACTIONS OF THE AMERICAN ORTHOPEDIC ASSOCIATION. Sixth Session.

This volume contains a large number of unusually interesting communications, indicating that the annual meeting of the Society was a most profitable one. It would consume too much space to speak particularly of each paper, while to refer to a few would seem unjust to the large number of worthy articles necessarily left unmentioned.

Certainly the American Orthopedic Association is to be congratulated upon the interest manifested, and upon the activity of its members.

The volume is a very creditable specimen of printing and binding.

ESSENTIALS OF MINOR SURGERY, BANDAGING AND VENEREAL DISEASES. By EDWARD MARTIN, A.M., M.D., Clinical Professor of Genito-Urinary Diseases, University of Pennsylvania, etc. Second edition, revised and enlarged. Philadelphia: W. B. Saunders, 1893.

This book is one of a series of "Essentials," and in conformity with them is arranged in the form of "Questions" and "Answers." The first thirty-four pages are devoted to a description of roller-bandages, many of which are shown by reproductions from photographs. A chapter is given to handkerchief dressings. The plaster-of-Paris dressing is described. Chapters are found on knots and sutures, anesthetics, including the best methods of performing artificial respiration, fracture-dressings, luxations, venereal diseases and numerous other topics embraced in "Minor Surgery."

The student will find this work useful in acquiring the fundamental principles of the subjects embraced in the title.

LEONARD'S PHYSICIAN'S POCKET DAY-BOOK. Detroit: The Illustrated Medical Journal Company.

This day-book is now in the sixteenth year of its publication. Space is provided for thirteen months, beginning with the first of any month, and accommodates twenty-five or fifty patients daily. Pages for cash accounts and obstetric records are included. The usual printed matter is also added.

THE THEORY AND PRACTICE OF MEDICINE. By JAMES T. WHITTAKER, M.D., LL.D., Professor of the Theory and Practice of Medicine in the Medical College of Ohio; Lecturer on Clinical Medicine at the Good Samaritan Hospital, etc., etc. New York: Wm. Wood & Co., 1893.

Dr. Whittaker has added another to the long list of American text-books on the practice of medicine. The book as a whole is excellent, especially in its teachings of the later pathology. The constant insistance upon the mycotic origin of all the infectious diseases, even though the special agent through which the poison is spread is not known, will go far toward convincing many of the skeptical practitioners. There appears, however, to be nothing markedly original in the volume. It strikes one as being the result rather of careful reading than personal observations. One is especially struck with marked absence of the morbid anatomy. To be sure the author states in the preface that it will be but lightly touched. He is in error in many cases in which he does speak of the morbid anatomy, particularly in the section on diseases of the heart, where he states that the primary alteration of the heart-muscle in mitral insufficiency is hypertrophy of the *right* ventricle, and also in his description of diseases of the kidney.

The arrangement of the book is, to say the least, odd.

It is certainly a departure from general ideas to consider drowning a disease of the lungs, while pneumonia is treated among the general diseases. Exophthalmic goitre and myxedema are treated of as diseases of the organs of circulation, and diabetes mellitus and insipidus among diseases of the genito-urinary organs.

It shows the apt acceptation of the latest correct versions by the author in his repeated assertions that while diphtheria and scarlet fever may occur together, the throat affections of scarlet fever are as a rule not diphtheria. The view is also expressed that croup, while pathologically is probably sometimes distinct from diphtheria, must be considered by the practitioner as practically the same as laryngeal diphtheria. The apparent acceptation of idiopathic peritonitis is not up to the general views expressed in the book. A curious mistake, not peculiar to this book, is the description of a white-coated tongue with red papillæ in scarlet fever as the *strawberry tongue*. Certainly Flint's idea of the red rough tongue after the exfoliation of the epithelium is the correct one. No one ever saw a white strawberry with red seeds.

The treatment of empyema, which is so summarily dismissed, will

certainly be found unsatisfactory, as can be testified by any one having a large hospital practice, where cases are constantly received uncured which have been treated as the author suggests. Resection of the ribs is often necessary and is not such a slight operation as suggested.

It would be difficult to prove pregnancy as a certain prophylactic against scarlet fever.

Such are a few of the oddities of the book, but on the whole it is very profitable reading and deserves a place on the shelves as one of the best of our works on medicine.

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UNIVERSITY OF PENNSYLVANIA PRESS,
1516 Chestnut Street, Philadelphia, Pa.

UNIVERSITY
MEDICAL MAGAZINE

FEBRUARY, 1894.

CASES OF INFLUENZA SIMULATING TYPHOID FEVER AND CEREBRO-SPINAL MENINGITIS.[1]

By J. M. DaCosta, M.D., LL.D.

I have two cases of influenza to show you this morning. They present peculiar features that, I think, will interest you.

Case I.—Sailor, was taken ill November 14, admitted to the hospital November 22, with headache, pain in the back and extremities, diarrhea, slight cough, tongue brown and slightly coated, eyes closed most of the time. Heart, lungs, liver and spleen presented nothing abnormal. Urine 1020, acid, light color, contained no albumin.

Let me add to these statements that this man had a most peculiar tongue, which was strongly suggestive of typhoid fever, dry and red at the tip. There was an unusual element of debility, out of all proportion to any local affection we found, also suggestive of typhoid fever. Two days after admission, the man developed difficulty in breathing, or rather, I should say, irregularity in breathing. The respiration would go from 30 down to 20, then in the evening up to 44. We detected nothing in the lungs to account for this, only a few bronchial râles. After being placed upon bismuth and light diet, in the first twenty-four hours all the intestinal symptoms disappeared. At first we looked upon the case as one of catarrhal irritation of the bowels, but when the irritability of the bowels was quickly stopped, when, in other words, the stools in twenty-four hours became normal, but the fever persisted, and the extraordinary debility suggestive of the typhoid state became marked, the idea of the case being one of catarrhal enteritis proved to be untenable. Then arose the question, Was it typhoid fever? Unquestionably, the state of the tongue and the general debility, point

[1] Clinical lecture delivered at the Pennsylvania Hospital.

to this, and the swollen appearance of the abdomen, early in the case, also favored the belief that the disease was typhoid fever. A glance, however, at the temperature chart, shows us extraordinary irregularity, such as we do not see in typhoid fever. In one place we have it 101°, then it shoots down to 98°, it goes up again to 100°, then after two days it is fairly regular, and then, without any cause whatever, it shoots up to 103½°, after which it goes down until it reaches 98°. Such a chart surely does not belong to enteric fever. In the latter fever you will find very little difference between morning and evening, not exceeding 1° when the disease is fully established. This record then proved to us that it was not typhoid fever; and it is very evident that the case was one of influenza of low type. I wish to point out to you a most significant fact, the extraordinary debility which this man presented. He is now free from fever. He is, however, still extremely weak and pale; his pulse is very compressible, feeble, and only 68. The first sound of the heart is feeble. There is no enlargement of the liver or spleen, the abdomen is no longer tender, but is still slightly swollen. The mind is now, as it has been throughout his illness, absolutely clear. What shall we do for him? We shall put him on a full diet, meat, eggs, etc., and, reducing the quinine and whiskey he has been taking, give him iron and strychnia in decided doses.

CASE II.—*Influenza.*—Young man, 26 years of age, born in Russia, admitted to the hospital November 24. We have been unable to get a good history from the man. We had to guess at the length of time he was ill. He could neither understand us, nor could we understand him. What we have been able to ascertain is as follows:

He was taken suddenly ill about nine days ago; headache, pain in the back and extremities, vomiting slightly on the day of the attack, has not vomited since. His neck became stiff soon after he was seized, and he became sensitive all over the body. His eyes were very sensitive to light. There was no cough, no abdominal pain, no diarrhea; but much headache. The tongue was coated; the features expressed much pain; the eyes were closed most of the time on account of the photophobia; the head was thrown far back and the muscles of the neck were stiff. The hyperesthesia over the entire body was very marked; the heart and lungs were normal; there were no abdominal signs; the urine was 1019, acid, amber in color, contained no albumin; he had no spots anywhere on the body. He was admitted November 24. After admission his temperature was 101⅗°, in the afternoon of the 25th it rose to 102°, on the 26th it went down to 100°, on the 27th to 98°, afterwards it became subnormal on one or two occasions. When he was admitted we knew nothing of his history, nor could we obtain any information from him. Two things seemed probable, one, that he had

meningitis; secondly, that he had cerebro-spinal fever. I must admit that the view of cerebro-spinal fever seemed likely. The sudden development of the affection, the marked rigidity of the neck, the head thrown backward, the inability to put his chin on his thorax, the hyperesthesia that existed, all these points seemed to indicate cerebro-spinal fever; but I decided at once that it was not so, for these reasons: As soon as I saw this man I recognized that he did not have that singular face of cerebro-spinal fever, which, once seen, is never forgotten; he did not have those peculiarities of pulse which are so common in cerebro-spinal fever. He has a steady and very compressible pulse. In cerebro-spinal fever the pulse varies in a remarkable manner. It will be 80, then 60, then 140, then 100. You do not know, in fact, what to expect in the circulation. There was nothing like this in the case of this man. We have absence of eruption. In cases of cerebro-spinal fever eruption is common. I will not say that I have not seen cases without eruption, but they are comparatively few. If you take a hundred cases of cerebro-spinal fever, I think you will find in eighty that there is an eruption. This eruption is most significant and not easily overlooked, exists all over the body except, perhaps, the face. Another point: at the very beginning there was absence of repeated vomiting. The first day his tongue was extremely coated and remained so for three days. Vomiting is a symptom of cerebro-spinal fever, which is not only seen at the beginning, but is apt to be found throughout the course of the disease. For all these reasons, absence of vomiting, no irregularity of pulse, absence of eruption, I concluded that it was not cerebro-spinal fever, though the hyperesthesia and stiffness in the muscles of the neck and the headache were like those met with in cerebro-spinal fever. We now come to another diagnosis. Why could not this be a case of ordinary meningitis? There would be no eruption there, but there might be hyperesthesia and some drawing of the neck, as we have here. Yet this is not a case of meningitis, for these reasons: In the first place, cases of idiopathic meningitis are almost unknown to us. When you have meningitis arising in the adult it is of short duration; it is generally the result of an accident or an injury. The patient states that four weeks ago he was struck on the head; but in the meantime we have had no headache or other signs of disturbances. This malady came on too quietly for us to lay any stress upon that accident. In meningitis you would not have the fever subsiding in a few days. Moreover, meningitis in the adult is extremely rare. It is more common in children, especially the tubercular form. Another point, this man had a coated tongue. The tongue of meningitis is, as a rule, clear. If the disease be not cerebro-spinal fever, or meningitis, what is it? We have here one of those anomalous cases of influenza of

the cerebro-spinal type. When influenza was prevalent here about four years ago, we not infrequently came across cases like this, cases with the significant extreme hyperesthesia.

This morning our patient's tongue is slightly coated; the hyperesthesia has gone; he can move his head without pain; all the nervous phenomena which looked like meningitis have gone. Why did he have this peculiar type of the disease? This I cannot answer. It may be stated, as an opinion, that the poison centres in the nervous system, and in particular parts of the nervous system; for instance, you may suppose that it centered on the ganglia centres of sensation, just as it may throw its force on the lungs and abdominal organs, for we see types of all these varieties in influenza. Nobody has, as yet, absolutely demonstrated the bacillus of influenza; but whatever it be, bacillus or ptomaine, or whatever poison, it seeks out different parts of the body.

If the patient had meningitis, we should have cupped him, purged him freely, and otherwise treated him differently.

We ordered for the patient applications of ice to the head, which gave much relief. We gave him iodide of potassium, ten grains every three hours, as an alterative. We did that for the first day or two, when there was still a doubt in the case, and then continued it until the grave symptoms disappeared, though it was not, perhaps, the remedy otherwise indicated. On account of the great irritability and sleeplessness at night, he was given bromide. At present, as all the nervousness has disappeared, we shall give him Rochelle salt, half ounce every morning, as he remains somewhat constipated, and also put him upon compound tincture of gentian as a light tonic. He is fully convalescent.

[The patient returned to his work as a laborer on the street railroads. He was brought to the hospital about five weeks subsequently, having had a relapse. As in the first attack, he was seized with a chill and fell from giddiness. He had been ill for three days before admission with moderate fever; the temperature on admission was 99.4°. He had a violent headache, a coated tongue, but neither rigidity of the neck nor hyperesthesia. In five days afterwards he was nearly well. No spinal symptoms developed, and the attack was comparatively light. Ice to the head, saline laxatives, phenacetine, followed by quinine, were the remedies employed.]

FIG. 1.

Edema of the vulva.

TWO CESAREAN SECTIONS AND THREE SYMPHYSEOTOMIES: A YEAR'S WORK IN THE SURGICAL TREATMENT OF INSUPERABLY OBSTRUCTED LABOR.[1]

By Barton Cooke Hirst, M.D.,

Professor of Obstetrics in the University of Pennsylvania.

An insuperably obstructed labor is, I think, as dangerous a condition as can be found in medicine or surgery. It is surely fatal for mother and child unless delivery is effected by a difficult operation, and yet the serious nature of the case is often unsuspected. A grave disease or a bad injury is not commonly overlooked, but an insurmountable obstruction in labor is very likely indeed to remain undetected until the mother and child are past aid. The general practitioner trusts too long to nature, as a rule, and when he discovers that natural forces are insufficient, he tries forceps and version, procedures that have stood him in good stead before. It is often only when these fail that he realizes the threatening character of the case and calls upon the expert, whose efforts are handicapped by the original attendant's delay. Fortunately, the five cases about to be reported do not strikingly illustrate this fact, but they do show some of the commonest obstructions to be anticipated in labor, and they may, perhaps, serve as a warning to the obstetrician to be on his guard against too long a delay in similar cases. They certainly furnish a strong argument in favor of careful pelvic exploration, including pelvimetry, in pregnant and parturient women.

Case I.—*Primipara in labor many hours, with pelvis choked by a fibroid attached to the cervix; Porro operation; recovery.*—This case has been reported[2] by my friend, Dr. Guy Hinsdale, under whose care the patient was. The child was, unfortunately, dead at the time of operation. The woman had a shock temperature and pulse=97° and 140, when the operation was begun. She reacted immediately afterward and made a good recovery. One of the chief elements of success, I think, was the rapidity of the operation, less than half an hour, which was obtained partly by certain steps in the technique which I strongly favor. The abdominal incision was long enough to turn the uterus out of the abdominal cavity before it was incised. The intestines were at once covered with sterilized towels placed in the abdominal cavity.

[1] Read before the College of Physicians, December 16, 1893.

[2] Medical News, 1893.

The cervix was transfixed with pins and secured by a round rubber band, which was tied in a single knot and the ends then clipped by a very short hemostat that I have for the purpose. I consider this much superior to the wire noeud. The extra-peritoneal treatment of the stump is not an ideal method, but it is quick and easy, and is, therefore, to be preferred when every moment saved is of importance to the woman.

CASE II.—*Face presentation with chin posterior and gigantic overgrowth of the fetus (14 lbs.); Porro operation; recovery.*—This woman had had several children before without special difficulty. She had been in labor a comparatively short time before she was brought to the Maternity Hospital by Drs. McFadden and Hammond. Efforts had been made to deliver with forceps, but they had failed. When I first saw the woman she was somewhat shocked; the uterus was tetanically contracted; the contraction ring was not far from the navel. The vulva presented the most remarkable appearance I have ever seen. The labia were so edematous that they projected three or four inches from the body; they were dark, red in color, and in spots contused and abraded. The vagina also showed abrasions. The child's face was tightly wedged in the pelvis, with the chin posterior. I was unable by any plan to budge the face in any direction. As soon as the woman could be prepared, a Porro-Cesarean section was performed. It required all the force I was capable of to dislodge the face from above. The child was dead and its body, as well as the uterus, fairly stank. My hands were infected in the operation, and I was disabled for two weeks. The nurse in attendance on the case afterwards had a similar mishap. Some one inexperienced in this complication of labor—face presentation, chin posterior, gigantic overgrowth of the fetus—might inquire why craniotomy was not attempted. This operation received careful consideration, but was discarded for the following reasons: It was not certain that the child was dead; an attempt to extract the child through such a vagina and vulva as this woman had would have been followed by serious injury, sloughs and infection; as it was, the left labium sloughed off after the operation; finally, I am convinced that an attempt to deliver by craniotomy would have failed, and that I would have been compelled eventually to perform Cesarean section with much diminished prospects of success. A medical friend had this experience last summer in a similar case, and I have the specimens from another fatal case in my collection in the University.

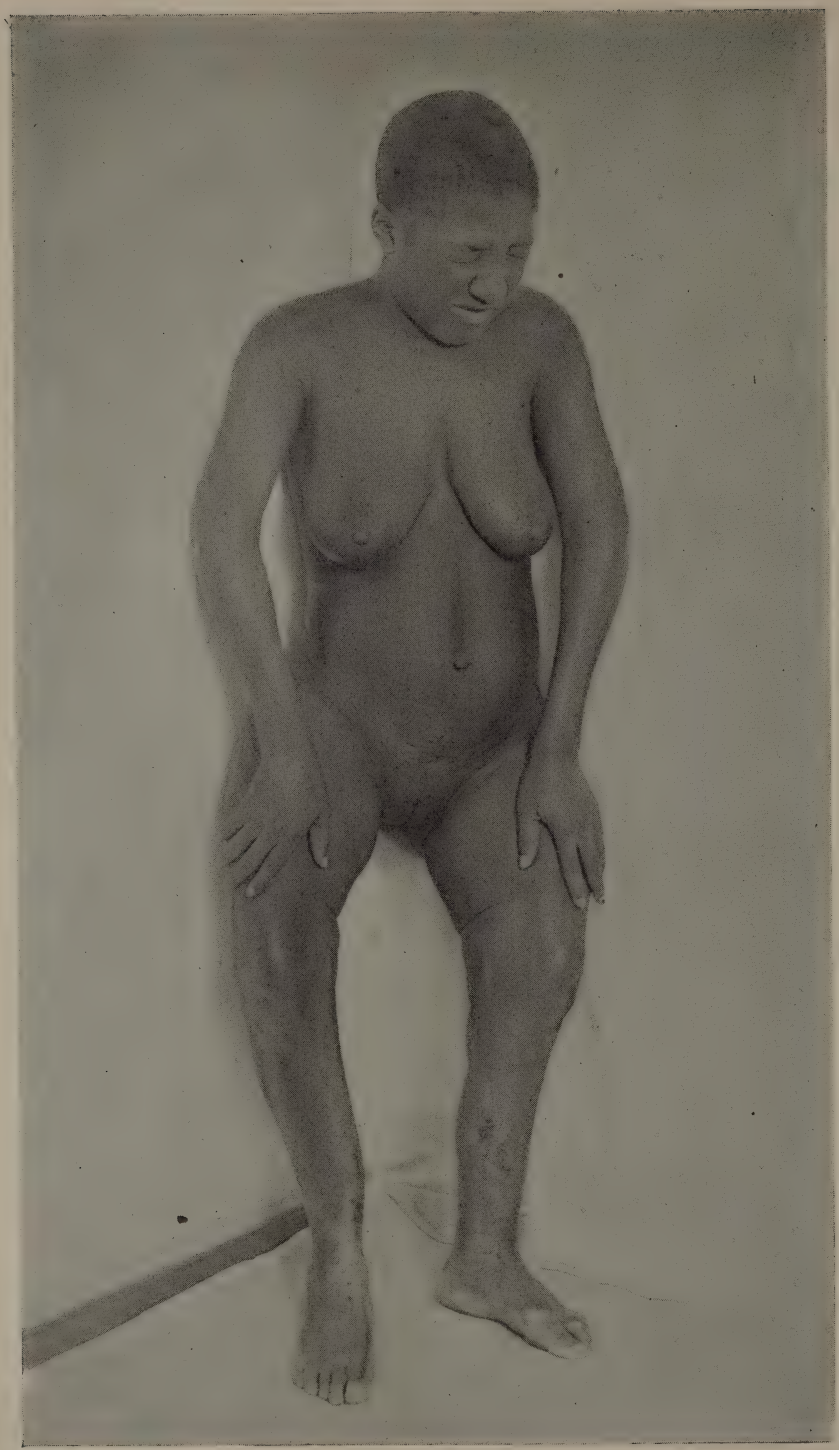
CASE III.—*Primipara in labor forty-eight hours; rachitic pelvis; symphyseotomy and delivery with forceps; recovery.*—This case has been previously reported.[1] I thought it at the time the first in America,

[1] Medical News.

Fig. 2.

Appearance of child after prolonged labor in a face presentation.

FIG. 3.



Rachitic dwarf, 4 feet, 1 inch high, c. v. less than 6 centimetres, delivered by symphyseotomy.

but I soon discovered that I was anticipated two days by Dr. Jewett, of Brooklyn. I am now told by Dr. Harris that I was preceded six months by an operator in the Southern States, who is shortly to report his case, the first in America. My patient and her baby were sent back to Germany in good condition.

CASE IV.—*Rachitic dwarf, primipara, aged 34, diagonal conjugate of 9 cm., delivered by prematurely induced labor, artificial dilatation of the cervical canal, symphyseotomy and version.*—This case has also been previously reported.[1] The delivery was effected with remarkable ease and rapidity. The mother had an afebrile convalescence, and the child, seen last at six months of age, was in a fine condition. A very valuable aid in this case was the slight diminution of the head diameters, the child being between two and three weeks premature, and the thorough dilatation of the cervical canal by a Barnes' bag twice as large as the largest sold in the shops, which I had made to order.

CASE V.—*A rachitic dwarf, a primipara, 4 feet 1 inch high; diagonal conjugate, 9 cm.; symphyseotomy and version; recovery.* This case, not hitherto reported, is, on the whole, the most instructive I ever attended. My attention was called to the woman when I first assumed charge of the Maternity Hospital this autumn. It was obvious at a glance that her pelvis was deformed. Her diminutive size and the peculiar waddle by which she progressed indicated a serious pelvic deformity. I at once measured the pelvis, and found a diagonal conjugate of 9 cm. I was surprised to find it so long. I repeated the measurement several times, always with the same result. Two of my medical friends found, independently, the same measurement. It seemed a case, therefore, for symphyseotomy. I had delivered a rachitic dwarf with the same measurement both antero-posteriorly and transversely a few months before without difficulty, and there are many cases on record delivered successfully by symphyseotomy with as small or smaller measurements. I had my misgivings, however, and would have preferred Cesarean section, but I felt constrained to resort to symphyseotomy on account of its much lower mortality, and in view of its probable success. Labor was induced, the cervical canal artificially dilated, the symphysis cut and forceps tried. This failed to engage the head. Version was performed and the child extracted up to the shoulders. So much force was required to extract these and the head that I broke a clavicle and the child's neck. I felt convinced by this experience that the true conjugate was smaller than one would ordinarily be justified in assuming with a diagonal conjugate of 9 cm. To determine this point, and to provide for my use a more accurate

[1] Medical News.

system of pelvimetry than Baudelocque's plan, I had this pelvimeter constructed. I found by it that the woman had a true conjugate of less than 6 cm.

To measure the conjugate with this instrument the woman is placed in the lithotomy position, with the buttocks projecting well over the edge of the table. A mark with a lead pencil is made on the skin over the symphysis one-eighth of a inch below the upper edge. Two fingers of the left hand are inserted in the vagina to find the promontory of the sacrum, as in Baudelocque's method. Tip B of the pelvimeter is then placed firmly upon the middle line of the promontory, and an assistant adjusts tip A directly over the mark made upon the skin covering the symphysis. This arm is then screwed fast, the pelvimeter withdrawn and the distance between the tips measured with a tape measure (see Fig. 6). This is the true conjugate plus the thickness of the upper portion of the symphysis. The latter is measured as shown in Fig. 7. The usual thickness of the symphysis at its upper part I have found, from the measurement of fifty-five pelves, to be 1 cm. Twenty-six pelves had this measurement; thirteen had 1½; nine, 1¼; four, 1¾; and only three measured 2 cm. One of these was a high grade rachitic pelvis, one was of the masculine type, and the third was a justo-major pelvis. I think my case demonstrates forcibly the superior accuracy of this method of finding the true conjugate. The idea, it will be recognized, is borrowed from Wellenbergh and his recent follower, Skutsch, but this pelvimeter answers the purpose much better, I think, than any hitherto constructed.

It is needless to argue for greater accuracy in pelvimetry if we are to base operative procedures on the difference of less than ½ cm. in the conjugate. The necessity for it is apparent. That the method at present in widest use, Baudelocque's plan, of taking the diagonal conjugate is untrustworthy is well known to all experienced in pelvimetry. Mine is by no means the only case in which there has been a difference of 3 cm. or more between the true and diagonal diameters, instead of the 1¾ cm. usually allowed. Litzmann measured a pelvis in which the difference between the true and diagonal conjugates was 2.8 cm. Pershing found one in Philadelphia in which the difference was 3.6 cm., by actual measurement of the dried specimen It is easy enough to lay down rules for avoiding this error, based on the study of dried specimens, but it is practically impossible to put them to use in the living female. The height of the symphysis is readily found, but an allowance for variations in this respect avoids few errors. It is the variations in the conjugato-symphyseal angle that count, and there is no way of accurately determining them.

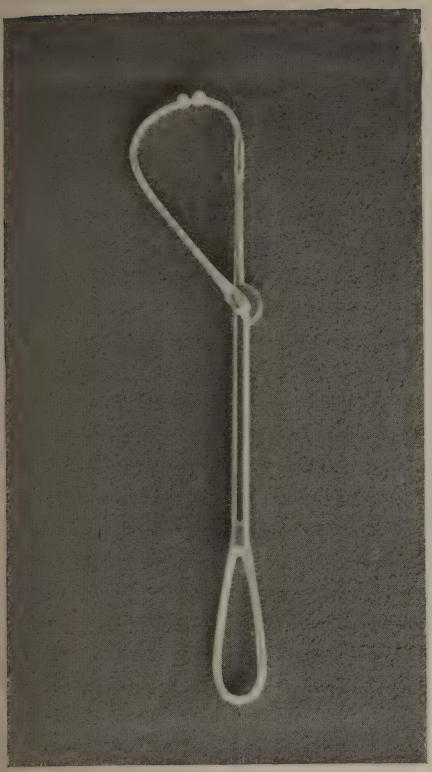


Fig. 4.

Pelvimeter for measuring the thickness of the symphysis.

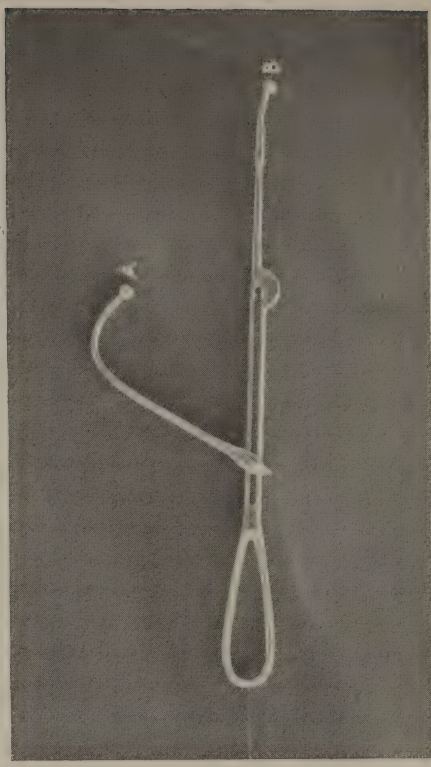


Fig. 5.

Pelvimeter for measuring distance between the outer edge of the symphysis and the promontory of the sacrum.

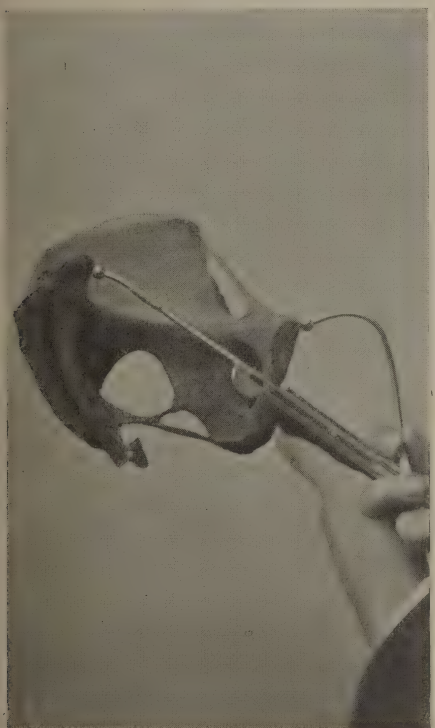


Fig. 6.

Measuring the conjugate diameter plus the thickness of the symphysis.

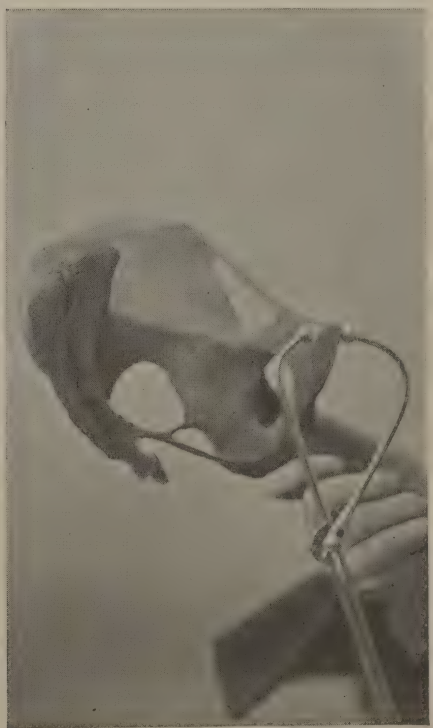


Fig. 7

Measuring the thickness of the symphysis.

A CASE OF PURULENT PERICARDITIS; PARACENTESIS OF THE PERICARDIUM.

By William Pepper, M.D., J. H. Musser, M.D.,
and
John B. Deaver, M.D.

W. S. M.,[1] aged 21, born in Philadelphia, and at the time of his illness, resident physician in the Philadelphia Hospital, was suddenly seized on the 26th of December, 1889, with general symptoms not unlike influenza, which was epidemic at the time. He had been in perfect health prior to the onset of this attack, and he had always been regarded as a man of unusual vitality. He had never been ill before, nor was there any hereditary ailment in the family. While suffering from the general malaise and pains of the first few hours of the attack, he was compelled to take a long ride, and the exposure to which this journey subjected him made him somewhat chilly. On his return he was obliged to take to his bed on account of extreme prostration and high fever.

On the following day the fever continued, the morning temperature being 104°, and the afternoon and evening, 104⅕°. On Saturday, the 28th, the general pains subsided, but acute pain still persisted in the left knee. The affected joint was much swollen, and the surface of the skin was red. With the onset of the knee-pain nausea and vomiting developed, the former persisting throughout the day. Nothing further was noted until the 29th, when there was a severe attack of dyspnœa, apparently subjective in character, occurring, at least without obvious reason; it was relieved by wet cupping. Dr. Musser saw the patient on the 29th, after the first attack of dyspnœa. There did not appear to be any objective evidence of disease in the heart or lungs. The heart's action was rapid but regular; the impulse was distinct, rather more extended in outline than normal. With the exception of the pain in the knee and the usual distress attending fever, the patient was comparatively comfortable.

On the 30th dulness was observed over the præcordia anteriorly from the second to the fifth rib, and from the right border of the sternum to the nipple line. The heart sounds were distant and muffled; there was no friction, but numerous fine râles, increased by full breathing, were heard on inspiration in the third and fourth interspaces. Directly above the nipple, over the præcordia, there was some pain and oppres-

[1] History from the notes taken by Dr. Harris.

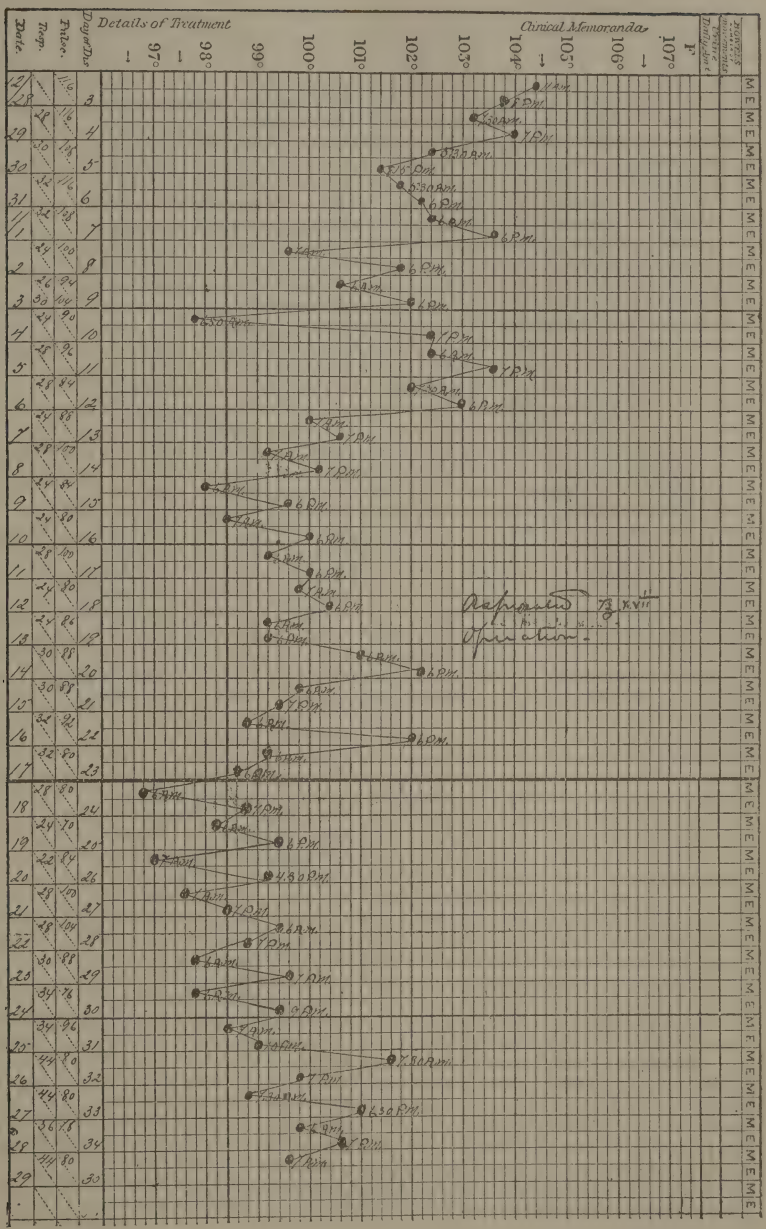
sion. The respirations were increased in frequency. There was no cough, but during the twenty-four hours there would be several attacks of dyspnœa.

From the 30th of December to the 5th of January three or four attacks of dyspnœa occurred each day. Nausea persisted, and vomiting was not infrequent. The matters ejected were not peculiar, usually consisting of the contents of the stomach, or of frothy acid liquid. Throughout this time the pain in the knee continued, but lessened in severity. The patient constantly complained of epigastric fulness, and was absolutely sleepless. On New Year's day delirium developed, the fever continued without diminishing in severity, the urine, which was at first scanty, at this time became normal in amount and did not contain albumin.

On January 6 the patient had a severe attack of dyspnœa, and a positive pericardial friction-sound was now heard for the first time. The pulse, which had always been frequent, became weaker, and by the 9th grew irregular. On the morning of the 9th there was a particularly severe attack of dyspnœa, and the præcordial area of dulness was noted to be much increased, extending into the second, third and fourth interspaces, two and one-half inches to the right of the sternum. The cardiac impulse, with the exception of a faint wave along the right edge of the sternum, was entirely absent, the heart sounds were distant and feeble, and the pulse was irregular and dicrotic.

On Saturday, January 12, after a day of extreme dyspnœa, nausea and prostration, the area of cardiac dulness was found to extend as follows: From the second to the sixth rib on the left side. More definitely it extended, in the second interspace, two inches; in the third, two and one-half inches; in the fourth, two and three-fourths inches; in the fifth, three and one-half inches beyond the left border of the sternum. On the right of the sternum the third and fourth interspaces were occupied by dulness one inch beyond the edge; there was dulness over the lower two-thirds of the sternum. A faint impulse could now be seen in the third and fourth interspaces on both sides. The heart sounds were feeble and distant. A feeble wave-like impulse was transmitted to the hand only. There was slight congestion over the base of the left lung.

On Sunday, Dr. Pepper saw the patient in consultation. Aspiration was determined on. The pericardial sac was punctured, and seventeen ounces of sero-purulent fluid removed. The needle was inserted about the position of the apex in health, and thrust upward and outward to the left. Breathing was relieved, and the pulse became more regular and stronger. The next day, after consultation with Dr. Deaver, incision and drainage of the pericardium was determined upon.



Temperature chart of a case of purulent pericarditis.

The operation was done by Dr. Deaver the same day, assisted by Drs. Venneman and Harris, Drs. Pepper, Musser, Morton, Brinkmann and Harry Deaver being present. Ether was administered without any unfavorable effect. Lymph and fluid were discharged through the incision. The pulse fell soon after the operation, and the septic symptoms, especially the exhaustive sweats, became much improved. The respirations were also relieved. Dyspnœa did not recur, and the appetite returned. The discharge was profuse during the first forty-eight hours, but subsequently to this time lessened much in amount, and appeared to be simply an oozing of sero-purulent matter in small amounts. The drainage did not appear to be sufficient. The sounds were much muffled ; the pulse small, irregular, and the dicrotic character continued ; nausea recurred, vomiting became more common, and the epigastric oppression was severe. Enemata could not be retained on account of persistent diarrhœa. Congestion of the bases of both lungs gradually developed. The liver dulness increased very much. On the 24th of January the patient had a number of attacks of dyspnœa, associated with severe retching and vomiting.

On the 25th the dyspnœa was constant, the extremities were cold, nausea was persistent, the pulse continued irregular and became intermittent. Pain in the region of the liver was complained of bitterly. The drainage tube was removed and the pericardial sac washed out. The symptoms continued. The prostration from the nausea was most extreme, congestion of the lungs gradually increased and death took place on the 27th.

Autopsy.—The autopsy was made hurriedly for obvious reasons. The heart and pericardium, the lungs and the upper abdominal cavity were examined. On removal of the sternum the pericardial sac was seen to be much distended in the third and fourth interspaces on the right side, reaching to one and a quarter and one and a half inches respectively beyond the right border of the sternum. On the right side the upper border of the pericardial sac extended as high up as the second rib, and on the left to the second interspace. In the second left interspace its outer limit was three inches from the left sternal edge ; in the third, three and a half inches ; in the fourth, three and a half inches, and in the fifth, four inches. The margin of the lung overlapped and was adherent to the exterior of the pericardium. On opening the sac a marked distention to the left was seen, due to the accumulation of an enormous amount of fibrinous exudation which covered the auricles of that side ; literally, handfuls of the exudate were removed. The apex of the heart did not extend beyond the nipple line. Indeed, the vessels at the base and posteriorly quite held the heart to the centre of the mediastinum. The increase in dulness to

the left below as well as above was due to the exudation and not to any displacement. The increase to the right was due to right-sided dilatation, which was extreme. The heart was examined and the surface presented the usual appearance of pericarditis. The cavities were distended with ante-mortem clots, but there were no thrombi. The right auricle was much dilated. Measurements and weight could not be taken. The valves were normal, the orifices widened, the lungs were the seat of congestion posteriorly. The condition of the liver was of interest; it was more than twice its natural size. The left lobe was particularly enlarged and extended to the umbilicus. It was the seat of the most intense hyperæmia. The same hyperæmia was observed, but not to as great a degree, in the spleen and kidneys; the mucous membrane of the stomach was also intensely hyperæmic; there were submucous hemorrhages seen, but no ulceration.

NOTE BY DR. DEAVER.

The pericardium was exposed by carrying an incision through the middle of the fifth intercostal space, the centre of which corresponded to a point three inches from the middle line and to the inner side of the nipple, the position of the normal apex beat. The different strata of tissue were hastily divided, each being recognized in turn, the internal mammary artery avoided, the pericardium picked up between two pair of tissue forceps and opened and a rubber drainage tube introduced. The pericardium contained but a small amount of pus owing to the aspiration done the day before. There was practically no bleeding other than could be controlled by the sutures and apposing the edges of the wound.

The future progress of the case has been detailed by Dr. Musser. In the light of the autopsy, I cannot see that any improvement in the operative technique could have been made. From the character as well as the manner in which the exudate was distributed nothing would have been gained by resection of a rib or, further, by counter drainage. The point of the pericardium corresponding to the position of the normal apex-beat of the heart I regard as the best site for opening, as there is less likelihood of wounding the heart; the latter, however, is avoided if the pericardium is exposed by careful dissection and lifted away from the heart, as it were, by tissue forceps and the opening into it made between the forceps.

NOTE BY DR. MUSSER.

It is easy to speculate upon the etiology of the purulent pericarditis. No assumption regarding it is positive. The prevailing epidemic of influenza has had much to answer for in pathology, so that

to put upon it the origin of the present disease is a comfort to the mind, if not strictly accurate. The onset was undoubtedly like that of influenza; the patient never had rheumatism. There was no known lesion externally or internally which could have led to infection of the pericardium. It is quite within the range of possibility, therefore, to conclude that the patient from exposure had taken cold while suffering from an attack of influenza; apart from this supposition, no positive cause can be assigned for the pericarditis.

The case presented some features difficult of explanation. Quite early the physical signs of the first stage of pericarditis were made out. In a short time it was easily determined that a pericardial effusion was present; moreover, the vomiting, the epigastric distress, the dyspnœa and the irregular heart tally well with our knowledge of the clinical course of pericarditis. However, the writer was never sure that there was not also an associated endocarditis. On examination the præcordial area of dulness was much increased, a faint impulse was transmitted to the hand, while to the right of the sternum in the fourth and fifth interspaces a visible impulse was observed. On account of the presence of this impulse, with the occurrence of congestion of the lungs and enlargement and congestion of the liver, to the writer it was most difficult to distinguish between the renewal of the pericardial effusion and a dilatation of the already weakened heart. The sudden onset of the dyspnœa, the associated congestion and the physical signs indicated above rather inclined him to the view that the case was one of acute dilatation of the heart arising in the course of healing pericarditis, said dilatation having been due to exertion or having arisen after a valve lesion which might possibly have co-existed. As the notes of the autopsy show, both a pericardial effusion and a dilatation, particularly of the right ventricle, were present. On account of the dilatation, pulmonic, gastric and hepatic congestion arose. No doubt the persistent nausea and vomiting and the epigastric and hepatic pain were due to the engorgement of the latter organs. Certainly such symptoms and engorgements never occurred in other cases of pericardial effusion which the writer has seen, even though large amounts of fluid were present.[1] A few of the symptoms are worthy of special note: First, the sweats; they were marked and during the last week excessive; second, the pericardial oppression and anguish; third, the pallor of the countenance; fourth, the scanty urine without albumin; fifth, the delirium.

Prior to the performance of paracentesis Dr. Guitéras kindly saw the patient with me late one night, and we agreed that further con-

[1] Trans. College Physicians, 1887; Phila. Co. Med. Soc.

sultation would be proper before assuming the risks of the operation, and with this view Dr. Pepper was asked to see the patient the next day.

It is to be regretted that the autopsy was not more complete. The writer was struck with the presence of a large amount of purulent matter with partially organized lymph on the upper left portion of the pericardial sac, both anteriorly and laterally. Indeed, the heart was not much displaced, the right auricle and ventricle both being found to the right of the sternum and the apex in its usual position. The autopsy even showed that to aspirate in the position of the apex-beat, allowing the needle to pursue a direction to the left and upward, was proper in this case. Aspiration to the right of the sternum or near the xiphoid cartilage would have been dangerous. The post-mortem examination further showed how important it would have been had the incision been extended or even a rib resected in order to cause complete drainage of the sac. It was evident that an ordinary drainage tube could not possibly have drained away the large masses of lymph.

THE EFFECTS OF LESIONS OF CERTAIN PARTS OF THE BRAIN UPON THE HEAT PROCESSES.

By Edward T. Reichert, M.D.,

Professor of Physiology, University of Pennsylvania.

In an article on thermogenic centres read before the last meeting of the American Society of Physiologists, and subsequently published in this Magazine for March, 1893, I briefly reviewed the experimental work thus far published that seemed to bear directly upon the nerve centres specifically concerned in the production of heat, and reported a series of new investigations showing the location of the automatic thermogenic centres. The chief conclusions were: (1) That the automatic thermogenic centres are located in the spinal cord; (2) that the cruciate and Sylvian centres are thermoïnhibitory; (3) that the caudate nuclei and medulla oblongata contain thermoäccellerator centres; (4) that no specific heat centres probably exist in the optic thalami; (5) that specific thermotaxic heat centres, *i. e.*, centres having a common control over both heat production and heat dissipation, do not exist.

A number of important points in connection with that study obviously needed further investigation, as, for instance, the statements of Hale White as opposed to other investigators relative to the physi-

ology of the brain cortex in connection with the heat processes; the assertion of Ott that injury to the white matter immediately in front of the caudate nuclei is followed by a marked rise of temperature; the conflicting beliefs regarding the existence of heat centres in the optic thalami; the effects of injuries of the crura cerebri on the heat mechanism; similarly, the effects of lesions of the pons; and, finally, the effects of pyretic and antipyretic drugs after injuries of certain of the above parts. These, together with other suggestions of seemingly minor importance, lead me to begin three series of investigations: In one, complete transverse sections were made at various levels of the basal parts of the brain; in another, the same regions were punctured; and in the third, pyretics and antipyretics were administered after the operations, and their effects studied. The experiments in which transverse sections were made were performed chiefly with the view of repeating and extending the observations already on record. The method is, however, physiologically so brutal and so gross that it is not to be recommended. Punctures are infinitely preferable, causing less local and general disturbances, and permitting of accurate localization of small areas. The injection of cauterants is open also to serious objection, because of the almost certain involvement of neighboring parts by pressure, etc.

The present communication embraces the results of a series of sections.

In all of the experiments strong healthy dogs were used. Temperatures are in the C. scale and the heat units in kilogramme degrees.

The technique of the operation was always the same, unless otherwise specifically noted. The animals were anesthetized with ether, chloroform, or a mixture of both; a small trephine opening was made in the side of the skull opposite to and on a level with the upper surface of the structures to be cut; the membranes were punctured; a slightly bent probe (1 x 2 mm.) was inserted horizontally and pushed across through the brain mass until the interior of the skull on the opposite side was reached, and then with a downward sweeping movement all of the nervous structures below the probe were severed. A certain amount of hemorrhage was always noted, but this was very slight, and by properly inclining the head so as to facilitate drainage the pressure from a growing clot was in a large measure prevented. Bleeding, shock, etc., are sources of more or less fallacy, but the value of the results of a series of experiments which are of a comparative nature, if sufficiently numerous, are not essentially affected in this way.

In some of the experiments observations were made of changes in the bodily temperature only; in others, the method was calorimetric;

and in others records of bodily temperature, respiration, circulation and motor reflexes were obtained.

In the studies of the effects of lesions of the nerve centres on the heat processes, it is important to keep in view the fact that injury of almost any part of the cerebro-spinal axis may be followed by a more or less marked rise or fall of bodily temperature, which may continue for hours or even days, and which is especially likely to occur if the injury be one of any extent and if complicated by much hemorrhage, the pressure of a clot, shock, etc. Besides this, a fertile source of error may exist in the unaccountable and almost continuous fluctuations which occur, under perfectly normal circumstances, in the bodily temperature of rabbits, cats, guinea-pigs and dogs—the species of animals almost solely employed in this kind of investigation. The heat processes of the dog seem to be of greater stability than those in the other animals mentioned, and on that account, as well as their greater size, they are, as a rule, much preferable for studies of the heat mechanism. The mere fact that bodily temperature may be greatly influenced by injuries of almost any part of the cerebro-spinal axis renders it evident that no portion of the nervous mass should be regarded as a heat centre unless the alterations in the heat processes following operations upon it are more marked than those which occur when other indifferent parts are affected, and unless the results are fairly constant and positive and the region of study properly localized.

Sections of the basal parts of the brain, even though the animals are thoroughly anesthetized, generally severely affect the thermal, respiratory, circulatory and reflex motor functions, and in a majority of cases the animals succumb within a few minutes from a failure of the respiratory movements. If, however, artificial respiration is maintained, the immediate effects of the shock upon the respiratory centres pass away, and within a period varying from less than a minute to an hour or more, automatic respiratory movements are regained. This function is generally very much disturbed, as was apparent in irregularities in the depth and frequency of the movements frequently noted throughout the repeated hours of observation; indeed, it was not uncommon for respiration to cease, and after a time to be resumed, only to cease again and be resumed, and so on, perhaps, four or six times or more during a period of as many hours, respiration being kept up during the intervals of cessation by artificial methods. As a rule, it seems that the nearer the sections are to the medulla oblongata, the more profound and lasting the effects on the respiratory centres. Sometimes the heart's action was arrested immediately after the section; in one experiment it was arrested for thirty-seven seconds. Death, however, never

resulted in any instance from permanent inhibition. In a number of experiments in which the vagi were severed previous to the brain section, or in which these nerves were cut during the period of marked cardiac inhibition, it was evident that the diminution in the frequency of the beats was due to the inhibitory influences being exerted through these nerves, for in every instance after their section there was an absence of the inhibition. In many experiments sudden changes in the frequency and strength of the beat were noted: Thus, in one instance, the rate fell within a few seconds from 264 to 192 beats per minute, accompanied by a marked alteration in the force of the contractions; shortly afterwards it as suddenly increased from 153 to 240. Owing to the readiness with which the respiratory centres are involved by these sections, it was my practice immediately to insert a tracheal tube, and as soon as signs of failure of respiration were detected, to begin artificial respiration, stopping the latter as soon as automatic movements returned with sufficient strength and regularity to maintain the function. After these sections the dogs seldom lived for more than six or eight hours, occasionally for twenty-four or forty-eight hours, and rarely for three days.

The experiments may be divided into five classes, according to the region in which the section was practiced: (1) The frontal lobes just anterior to the ends of the caudate nuclei; (2) the corpora striata; (3) the optic thalami; (4) the crura cerebri; and (5) the pons.

For many reasons it would have been appropriate and desirable to have included a number of experiments upon the cortical heat centres of Eulenberg and Landis and of Ott, especially so since White in a recent communication [1] has recorded results which lead him to reach conclusions in opposition to those of all other recent investigators. White states in connection with the cruciate centres that lesions of this region do not, or but slightly, affect rectal temperature. Regarding the Sylvian region, he concludes that its injury may cause irregular rises of temperature, which are quickly produced and last for but a short time; sometimes several rises and falls occurring after a single operation. He was induced to believe, considering the irregular variations and rapid character of the changes of temperature following these lesions, that certain parts of the cortex are concerned in maintaining the balance between heat production and heat dissipation; in other words, of the nature of thermotaxic centres. White's results and conclusions, however, do not seem to be in entire accord. Thus, in his experiments on the cruciate areas a rise of temperature occurred in every instance, varying from 0.4° to 2.8° F.; and in those in the Sylvian

[1] Journal of Physiology, XII, 1891, p. 233.

region, in eighteen out of twenty-one there was a rise—in six of less than 1°, in three between 1° and 2°, in nine from 2° to less than 3°, and in three from 3° to 4°, the average being 1.62°, and the greatest rise 3.6°. It seems that White's results agree, rather than conflict, with those of other investigators. There is, consequently, at the present time, no sufficient evidence to weaken the belief that there are specific heat centres in the cruciate and Sylvian regions of the cortex, and that both are thermo-inhibitory.

(1) *Lesions of the Frontal Lobes Just Anterior to the Caudate Nuclei.* —Ott states,[1] apparently from the results of but a single experiment upon a rabbit, that transverse section of the white matter 1 millimetre anterior to the ends of the caudate nuclei is followed by a rapid rise of temperature, which lasts until the third day. This, he avers, is the most anterior part of the brain that will give upon injury a marked increase of temperature. The experiments of Aronsohn and Sachs[2] and White[3] lead to the belief that Ott's result was entirely exceptional, and probably due to the involvement of the caudate nuclei. The results of my own experiments confirm this belief. In two instances in which the section was just anterior to the ends of the nuclei, barely escaping them, the temperature *fell* in both. Records were made of temperature, pulse, arterial pressure and respiration, and are given in full in the following tables (Experiments 1 and 2). It will be observed that while both circulation and respiration were materially affected, yet there is no obvious connection between their mutations and those of temperature. When, however, the sections involve even the mere tips of the caudate nuclei the results are in striking contrast, as is illustrated in Experiments 3, 9 and 10 which follow, in which not more than 2 millimetres of the ends were cut off.

This evidence seems, therefore, to point conclusively to the belief, that lesions of the white matter just anterior to the caudate nuclei are not usually followed by a rise of temperature, and, moreover, that this region is in no sense a specific part of the heat mechanism.

[1] Therapeutic Gazette, September 15, 1887.
[2] Pflüger's Archiv f. Physiologie, LVI, s. 237.
[3] *Loc. cit.*, and XI, 1890, p. 1.

EXPERIMENT No. 1. Dog; weight, 14.5.2 kilos.

TIME.	PULSE. PER MIN.	PRESSURE. MM.	RESPIRATIONS PER MIN.	TEMPERATURE. C.°	REMARKS.
h. m. s.					
0.00.00	250	140	42	38.90	Section within 1 mm. of anterior ends of caudate nuclei.
1.00	192	122	42	. .	
2.00	102	140	39	. .	
3.00	113	138	39	. .	
5.00	180	118	34	. .	
10.00	147	128	20	.82	Feeble reflexes.
15.00	123	134	30	.68	
20.00	114	132	69	.50	
25.30	114	130	84	.38	
45.00	114	122	70	.20	
1.00.00	108	108	23	37.60	
15.00	105	108	15	.40	
30.00	104	112	12	.38	
45.00	118	110	9	.38	
2.00.00	126	120	9	.32	
15.00	132	120	8	.30	
30.00	132	126	8	.22	
45.00	159	130	18	.40	
3.00.00	135	124	8	.45	
15.00	135	134	8	.42	
30.00	153	130	12	.68	
45.00	138	140	8	.70	
4.00.00	138	140	10	.80	Killed with chloroform.

EXPERIMENT No. 2. Dog; weight, 11 kilos.

TIME.	PULSE. PER MIN.	PRESSURE. MM.	RESPIRATION. PER MIN.	TEMPERATURE. C.°	REMARKS.
h. m. s.					
0.00.00	162	156	. .	38.80	Section 1 mm., anterior to ends of caudate nuclei.
.30	156	124	. .	. .	
1.00	150	146	150	. .	
3.00	128	140	132	. .	
5.00	102	128	102	.52	
10.00	108	132	84	.42	Orbital reflexes gone; patellar reflexes good.
15.00	108	126	69	.28	
20.00	114	102	36	.15	
30.00	114	106	34	.08	Salivation; orbital reflexes returned.
35.00	90	140	45	37.98	
40.00	90	140	35	.88	
45.00	90	140	34	.82	
1.00.00	93	136	38	.78	
15.00	139	154	34	.65	
30.00	135	176	24	.58	
40.00	. .	. .	. .	. .	Killed with chloroform.

(2) *Lesions of the Corpora Striata.*—The experiments of Ott,[1] Aronsohn and Sachs,[2] Girard,[3] Baginsky and Lehmann,[4] and White[5] all indicate that lesions of the corpus striatum are generally followed by a marked increase of temperature, and some of the observations show that this rise is due to increased heat production. The most extensive of the above investigations is by White, which embraces twenty-three experiments in his first paper and four in his second. In three of the twenty-seven no rise occurred, and in two there was a fall; in the remaining twenty-four the temperature reached a point between 104° and 106.8°. In seven it went to 106° or over.

In my own investigations, section was made through the striated bodies in twelve experiments (Experiments 3 to 14, inclusive), in six of which the calorimetric method was employed. The following are the records of six in which merely temperature changes were noted. The sections were at the following levels: Experiment 3, 2 mm.; Experiment 4, 5 mm.; Experiment 5, 6 mm.; Experiment 6, 9 mm.; and Experiments 7 and 8, 12 mm.; from the anterior extremities of the caudate nuclei.

Time.	Experiments.					
	3	4	5	6	7	8
h. m.						
0.00	. .	. .	. .	. .	. .	. .
.02	. .	. .	. .	39.28	. .	. .
.03	. .	. .	. .	.26	. .	39.42
.05	38.72	39.32	39.68	.22	38.45	. .
.10	39.08	38.82	.80	.20	.52	.52
.15	38.95	.65	.82	.22	.65	.62
.20	.88	.60	.95	.32	.68	. .
.25	.72	.50	40.08	. .	.50	. .
.30	.60	. .	.22	.52	.52	.88
.45	.45	.55	.92	.85	.65	40.35
1.00	.20	.55	42.22	40.35	.95	41.05[1]
.15	37.88	.88	. .	.92	. .	.18[1]
.30	.68	39.02	.98	. .	39.50	.30[1]
.45	. .	.05	. .	41.93	40.52	.50
2.00	.12	.12	43.85	. .	. .	.62
.15	. .	. .	.70	42.48	. .	. .
.30	36.90	.90	.62	. .	41.53	.55
.45	. .	. .	. .	.52	. .	. .
3.00	.72	40.28	.50	. .	.20	.12
.15	. .	. .	. .	.68	. .	. .
.30	.72	.30	. .	. .	40.75	. .
.45	. .	. .	.75	. .	. .	. .
4.00	37.18	39.82	44.05	. .	.70	. .
.15	. .	. .	. .	. .	. .	. .
.30	.83	. .	. .	. .	. .	. .

[1] Injected intravenously 1 gramme phenocoll hydrochlorate. (Total quantity injected 3 grammes.)

[1] Journal Nervous and Mental Diseases, April, 1894. [2] *Loc. cit.*
[3] Archiv. de Physiologie, VIII, 1886, p. 281. [4] Virchow's Archiv, CVI, 1886, s. 258.
[5] *Loc. cit.*

The important features to be noticed in these records are the differences in the general characters of the temperature alterations. In one experiment (No. 3) there was a temporary increase followed by a steady fall for three hours, and then a slight recovery. In two experiments (Nos. 4 and 6) there occurred a primary fall followed by a marked rise; and in three (Nos. 5, 7 and 8) the temperature immediately rose and was hypernormal throughout. In Experiment 3 the rise amounted to 0.36° and the decline to 2°; in Experiment 4 the primary fall was equal to 0.08°, while the rise was 0.98°; in Experiment 6 the primary fall was 0.08° and the rise 3.4°; and in Experiments 5, 7 and 8 the rises were 4.37°, 3.08° and 2.2°, respectively. In Experiment 8 the temperature would, perhaps, have gone higher had not 3 grammes of phenocoll hydrochlorate been injected into the vein. The average increase in the six experiments was 2.4°.

In the remaining six experiments, in which the calorimetric method was adopted, the hourly records are, of course, insufficient to show the maximum changes, but in every case the increase of temperature was decided, varying from 0.34° to 4.43°, an average of 1.56°.

EXPERIMENT No. 9. Dog; weight, 7.71 kilos.

	Heat Production.	Heat Dissipation.	Rectal Temperature.			Room Temperature.	Remarks.
			Beginning.	Ending.	Gain or Loss. (+ or —.)		
Hour before section	20.987	21.912	38.53	38.38	—0.15	20.8	*Autopsy:* Section cut off about 1 mm. of anterior ends of caudate nuclei.
1st hour after section	26.415	27.648	38.68	38.48	—0.20	21.4	
2d " " "	23.575	21.416	38.48	38.83	+0.35	21.7	
3d " " "	27.866	26.684	38.83	39.02	+0.19	21.1	
4th " " "	27.042	27.905	39.02	39.88	—0.14	21.1	

EXPERIMENT No. 10. Dog; weight, 9.07 kilos.

Hour before section	18.033	20.500	38.58	38.24	—0.34	21.8	*Autopsy:* Section cut off 2 mm. of anterior extremities of caudate nuclei.
1st hour after "	14.534	18.888	38.48	37.88	—0.60	22.1	
2d " " "	19.155	12.770	37.88	38.76	+0.88	22.3	
3d " " "	18.093	18.310	38.76	38.73	—0.03	22.2	
4th " " "	21.600	18.900	38.73	38.96	+0.23	21.9	
5th " " "	19.194	17.935	38.96	38.72	—0.24	22.1	

EXPERIMENT No. 11. Dog; weight, 10.231 kilos.

1st hour before section	31.617	29.816	39.30	39.52	+0.22	20.8	*Autopsy:* Section 6 mm. from anterior extremities of the caudate nuclei.
2d " " "	26.299	27.036	39.62	39.23	—0.20	21.2	
1st " after "	30.490	23.778	59.23	40.05	+0.82	21.3	

EXPERIMENT No. 12. Dog; weight, 8.389 kilos.

Hour before section	14.886	17.800	39.26	38.87	—0.39	20.8	*Autopsy:* Section 8 mm. from anterior extremities of the caudate nuclei.
1st hour after section	29.300	19.179	39.28	40.79	+ 1.51	20.4	
2d " " "	12.327	11.724	40.79	40.88	+ 0.09	20.6	
3d " " "	12.875	5.100	40.88	42.03	+ 1.16	20.8	
4th " " "	22.054	13.005	42.03	43.38	+ 1.35	20.7	
5th " " "	25.487	23.265	43.78	43.71	+ 0.33	20.8	

EXPERIMENT No. 13. Dog; weight, 9.514 kilos.

Hour before section	22.790	23.790	38.65	38.65	± 0.00	19.8	*Autopsy:* Section 10 mm. from anterior ends of the caudate nuclei.
1st hour after section	40.766	26.458	38.70	40.58	+ 1.88	19.9	
2d " " "	16.810	20.692	40.58	40.07	—0.51	21.0	
3d " " "	3.404	17.180	40.07	38.26	—1.81	21.1	

EXPERIMENT No. 14. Dog; weight, 13.378 kilos.

Hour before section	29.855	33.600	38.89	38.54	—0.35	20.9	*Autopsy:* Section 14 mm. from anterior extremities of the caudate nuclei.
1st hour after "	24.506	29.000	38.60	38.18	—0.42	21.6	
2d " " "	28.045	24.300	38.18	38.53	+ 0.35	22.0	
3d " " "	29.476	22.200	38.53	39.21	+ 0.68	22.0	
4th " " "	44.036	28.200	39.21	40.79	+ 1.48	21.8	
5th " " "	33.151	33.900	40.74	40.72	—0.07	22.5	

A study of these records elicits as important facts: (1) That the effects on heat production, heat dissipation, and bodily temperature are not uniform; (2) that both heat production and heat dissipation are affected; (3) that in every experiment there was an appreciable increase of bodily temperatnre; (4) that the rise of temperature was due to an increase of heat production.

In four experiments (Nos. 9, 11, 12 and 13) heat production was increased during the first hour after the section; heat dissipation was also increased, yet, with a single exception, to a less degree than heat production, thus indicating that the alterations in heat dissipation were of a compensatory character, in other words, an effort of the economy to get rid of the excess of heat produced. In two experiments (Nos. 10 and 14) both heat production and heat dissipation were diminished immediately after the section, the former being the more affected of the two, again indicating that the effects on heat dissipation are of a secondary nature. Subsequently, heat production was increased, the relations, however, between the alterations in heat production and heat dissipation were of an uncertain character, yet, on the whole, indicate that the changes in dissipation are of a secondary character.

In two experiments (Nos. 11 and 13) the maximum increase of temperature was noted at the end of the first hour, being respectively 0.53° and 1.37°. In Experiment 9 it occurred at the end of the third

hour, amounting to 0.34°. In Experiments 10 and 14, at the end of the fourth hour, being respectively 0.48° and 2.19°. In Experiment 12, the highest record was obtained at the end of the fifth hour, showing a rise of 4.43°.

To recapitulate, in every one of the twelve experiments in which section was made of the striated bodies, a rise of temperature occurred, which ranged from 0.34° to 4.43°, giving an average of about 2°, which doubtless would have been materially greater had it been feasible to have taken temperatures at frequent intervals in the calorimetric series. This seems clear in the fact that the average increase in temperature in Experiments 3, 4, 5, 6, 7 and 8 was 2.4°, while in the calorimetric series it was but 1.56°. The temperature seems most profoundly affected when the section is 6 to 9 millimetres from the anterior ends of the caudate nuclei. These results are certainly in striking contrast with those recorded after section of the white matter immediately in front of the nuclei.

(3) *Lesions of the Optic Thalami.*—Both Ott[1] and Baculo[2] believe that the thalami are heat centres, and they state that their injury is followed by a rise of temperature. Ott's experiments were made by means of punctures of the ganglia, while Baculo's were pursued by injections of stains and cauterants. White,[3] in his first paper, reports the results of nine experiments made by puncture, in all of which there occurred a rise of temperature; but in his second contribution, as a result of further study, he reaches the conclusion that the thalami have no power to cause a rise of temperature, and that when they have apparently done so it has been due to injury of the corpora striata.

In two experiments in which I made special studies of bodily temperature after section of these ganglia, a slight but transient rise occurred in both. In one (Experiment 15) the increase amounted to 0.14°, and occurred within six minutes after the operation; in the other (Experiment 17) it amounted to 0.1°, and was recorded within the first eleven minutes. In both experiments this trifling increase was followed by a marked fall. In another experiment (No. 17) the animal was studied in the calorimeter. The temperature fell, which was due to diminished heat production, as the accompanying records show.

These results are in accord with White's, and with what the differences in the development and histological characters of these ganglia as compared with the striated bodies would lead us to believe, and are markedly different from those obtained after operations upon the latter.

[1] *Loc. cit.*
[2] *Loc. cit.*
[3] *Loc. cit.*

EXPERIMENT No. 15. Dog; weight, 12.678 kilos.

TIME.	PULSE. PER MIN.	PRESSURE. MM.	TEMPERATURE. C.°	REMARKS.
h. m. s.				
0.00.00	195	126	40.88	Complete transverse section through middle of optic thalami.
.30	84	98	. . .	
1.00	90	124	. . .	
2.00	108	196	. . .	
3.00	240	188	. . .	
5.00	. . .	. . .	40.98	
6.00	234	162	41.02	
8.00	240	76	40.98	
10.00	166	52	.95	Orbital and patellar reflexes absent.
15.00	159	66	.80	
20.00	152	64	.72	
25.00	152	58	.48	
40.00	150	56	.27	
1.00.00	150	54	.08	Injected hypodermically 0.26 gram. cocaine.
15.00	150	50	39.87	
30.00	150	50	.73	No motor reflexes.
45.00	144	50	.58	
2.00.00	144	50	.42	
15.00	140	56	.25	
30.00	138	84	.08	
3.00.00	240	154	38.78	
30.00	246	136	.90	
4.00.00	216	110	.80	
30.00	218	88	.55	Injected hypodermically 0.26 gram. cocaine.
45.00	. . .	48	.30	
5.00.00	. . .	50	.35	
1.00	. . .	. . .	. . .	Killed.

EXPERIMENT No. 16. Dog; weight, 10.344 kilos.

TIME.	PULSE. PER MIN.	PRESSURE. MM.	TEMPERATURE. C.°	REMARKS.
h. m. s.				
0.00.00	171	156		Section obliquely three millimetres from posterior ends of optic thalami.
.30	168	146		
1.00	114	150		
3.00	115	150		
5.00	78	152	39.22	
8.00	72	34	.28	
11.00	90	58	.32	
15.00	90	76	38.80	
20.00	102	92	.48	
25.00	102	148	.18	Automatic respiration.
30.00	74	90	.08	

EXPERIMENT No. 17. Dog; weight, 10.203 kilos. Section of thalami 4 millimetres from posterior border.

	Heat Dissipation.	Heat Production.	Rectal Temperature.			Room Temperature.	Remarks.
			Beginning.	Ending.	Gain or Loss. (+ or —.)		
Hour before section	30.408	30.816	38.64	38.59	—0.05	19.6	
1st hour after "	24.794	26.100	38.48	38.32	—0.16	20.1	
2d " " "	19.255	22.356	38.32	37.94	—0.38	19.9	
3d " " "	11.359	17.154	37.94	37.23	—0.71	20.1	
4th " " "	21.255	22.458	37.23	36.96	—0.27	20.1	

(4) *Lesions of the Crura Cerebri.*—There are exceedingly few experiments on record in which the temperature alterations were studied after the section of the cerebral peduncles. In one experiment by Wood[1] partial section was followed by a rise. In two experiments by White[2] a marked rise was noted in both, amounting to 3.4° and 2.2° F., respectively.

Of twenty experiments of my own, the results of which are condensed in the accompanying table, a rise was recorded in sixteen, and a fall in four. The increase varied from 0.04° to 3.64°. In twelve it was less than 1°, and in four it ranged from 1.2° to 3.64°. In ten out of the sixteen the rise was very transient. The region of section does not seem to exert any special influence; in Experiments 18, 19, 20 and 25, the sections were close to the thalami, and the rises 0.04°, 0.14°, 0.25°, and 2.94°, respectively; and in Experiments 24, 32 and 33 the sections were through the middle, the rises amounting to 1.23°, 0.12°, and 0.40°, respectively; and in Experiments 21, 22, 23, 26, 27, 28, 29, 30, and 31, the sections were all within three millimetres of the pons, the rises being 0.84°, 0.12°, 0.08°, 0.65°, 0.54°, 0.55°, 1.3°, 0.07°, and 3.64°, respectively; in Experiments 34, 35, 36 and 37, the temperature fell; the sections in all four were within three millimetres of the pons.

[1] Fever: A Study in Morbid and Normal Physiology. Smithsonian Contributions to Knowledge, No. 357, 1880.

[2] *Loc. cit.*

Time. Hrs., Min.	Experiments.									
	18	19	20	21	22	23	24	25	26	27
h. m.										
0.00									38.93°	38.88°
.05	38.78°	38.78°	39.50°	39.68°	39.28°	38.60°	39.42°	40.22°	. . .	. . .
.10	.82	.85	.75	.90	.40	.70	.60	.68	39.48	39.10
.15	.80	.92	.62	40.20	.35	.78	.75	.72	.58	.35
.20	.60	. . .	.52	.22	.18	.58	.60	. . .	.08	.42
.25	. . .	.78	. . .	.45	.32	.55	.45	.86	. . .	.35
.30	.38	. . .	.30	.52	. . .	.45	.48	. . .	.15	. . .
.45	.37	. . .	. . .	.48	. . .	.25	. . .	.95	38.85	. . .
1.00	. . .	. . .	. . .	.35	. . .	. . .	40.28	. . .	. . .	. . .
.15	.51	. . .	. . .	39.89	. . .	37.55	.44	41.22	. . .	. . .
.30	.53	. . .	. . .	. . .	. . .	. . .	.50	. . .	. . .	. . .
.45	. . .	. . .	. . .	. . .	. . .	. . .	.62	.31	. . .	. . .
2.00	.52	. . .	. . .	. . .	. . .	36.88	. . .	. . .	. . .	. . .
.15	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.90	. . .	. . .
.30	.32	. . .	. . .	. . .	. . .	.51	39.83	.71	. . .	. . .
.45	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
3.00	.20	. . .	. . .	. . .	. . .	.10	.42	.79	. . .	. . .
.15	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
.30	. . .	. . .	. . .	. . .	. . .	35.65	.18	.92	. . .	. . .
.35	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
4.00	. . .	. . .	. . .	. . .	. . .	.48	38.52	.90	. . .	. . .
.15	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
.30	. . .	. . .	. . .	. . .	. . .	.25	. . .	42.00	. . .	. . .
.45	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
5.00	. . .	. . .	. . .	. . .	. . .	34.88	37.95	. . .	. . .	. . .
.15	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.60	. . .	. . .
.30	. . .	. . .	. . .	. . .	. . .	.40	.48	. . .	. . .	. . .
.45	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.50	. . .	. . .
6.00	. . .	. . .	. . .	. . .	. . .	. . .	36.40	. . .	. . .	. . .
.30	. . .	. . .	. . .	. . .	. . .	. . .	35.10	.28	. . .	. . .
7.00	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.30	. . .	. . .
.30	. . .	. . .	. . .	. . .	. . .	. . .	. . .	43.16	. . .	. . .

Besides the above sixteen experiments, eight were performed by the calorimetric method (Experiments 39 to 46, inclusive). In Experiments 39, 40 and 41 the sections were 3 millimetres from the pons; in Experiment 44 it was close to the pons; in Experiment 43 it was 4 millimetres from the pons; in Experiment 43 it was through the middle of the crura; and in Experiments 45 and 46 it was close to the thalami. In four of the eight a slight transient rise of temperature followed the operation, which was succeeded by a profound fall. In the other four a fall set in immediately. The greater tendency to a decline of temperature in these experiments is owing to the effects of the calorimeter, the same being observed in normal animals.

A study of the records shows that the diminution of temperature is due to diminished heat production.

Time.	Experiments.									
	28	29	30	31	32	33	34	35	36	37
h. m.										
0.00	39.17°	. . .	. . .	. . .	. . .	. . .	. . .	38.88°	. . .	. . .
.05	. . .	39.00°	39.28°	39.38°	. . .	. . .	. . .	. . .	. . .	. . .
.10	.35	38.88	.35	40.15	40.08°	38.88°	38.95°	. . .	39.23°	. . .
.15	.65	.95	.25	. . .	.15	.92	.90	.40	.15	39.52°
.20	.72	.86	.08	.22	.18	.90	.85	. . .	.05	.38
.25	.40	.95	.05	. . .	.08	.88	.85	.37	38.94	.22
.30	.48	39.03	38.95	.20	.10	.95	. . .	. . .	39.00	.18
.45	. . .	.08	.80	. . .	.18	39.16	.32	.12	39.00	.22
1.00	. . .	.32	. . .	41.02	.15	.28	. . .	37.92	.03	.30
.15	. . .	.57	. . .	. . .	.15[2]	. . .	. . .	.35	.85	.12
.30	. . .	.82	. . .	.45	.15	.12	. . .	36.92	.80	38.50[3]
.45	. . .	40.08	. . .	. . .	.20	. . .	. . .	.60	.70	.49.
2.00	. . .	.30	. . .	.67	. . .	. . .	. . .	. . .	.78	.25
.15	. . .	. . .	. . .	. . .	.15	38.10	. . .	35.65	.75	37.92
.30	. . .	. . .	. . .	42.12	.10	. . .	. . .	.30	.75	.50
.45	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.10	.80	. . .
3.00	. . .	. . .	. . .	.22	.10	. . .	. . .	34.70	.85	. . .
.15	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.42	.85	. . .
.30	. . .	. . .	. . .	.50	. . .	. . .	. . .	.10	.90	. . .
.45	. . .	. . .	. . .	. . .	. . .	. . .	. . .	33.82	.87	. . .
4.00	. . .	. . .	. . .	.58	. . .	. . .	. . .	.50	. . .	. . .
.15	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.10	. . .	. . .
.30	. . .	. . .	. . .	.62	. . .	. . .	. . .	32.82	. . .	. . .
.45	. . .	. . .	. . .	. . .	. . .	. . .	. . .	.60	. . .	. . .
5.00	. . .	. . .	. . .	.72[1]	. . .	. . .	. . .	.32	. . .	. . .
.15	. . .	. . .	. . .	.80	. . .	. . .	. . .	.30	. . .	. . .
.30	. . .	. . .	. . .	.90	. . .	. . .	. . .	31.85	. . .	. . .
.45	. . .	. . .	. . .	43.02	. . .	. . .	. . .	.55	. . .	. . .
6.00	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
.30	. . .	. . .	. . .	42.90	. . .	. . .	. . .	. . .	. . .	. . .
7.00	. . .	. . .	. . .	.75	. . .	. . .	. . .	. . .	. . .	. . .
.30	. . .	. . .	. . .	.90	. . .	. . .	. . .	. . .	. . .	. . .
				.92						

Experiment No. 39. Dog; weight, 10.475 kilos.

	Heat Production.	Heat Dissipation.	Rectal Temperature.			Room Temperature.	Remarks.
			Beginning.	Ending.	Gain or Loss. (+ or —.)		
1st hour before sect'n	25.136	26.812	38.98	38.78	— 0.20	21.1	Section 3 mm. from pons.
2d " " "	29.978	28.889	38.78	38.91	+ 0.13	20.6	
1st " after "	19.324	32.888	38.66	37.28	— 1.38	20.3	
2d " " "	17.755	25.800	37.28	36.32	— 0.96	20.7	

[1] Injected intravenously 5 grammes of antipyrine.
[2] Injected hypodermically 0.28 grammes of cocaine hydrochlorate.
[3] Injected hypodermically 0.16 grammes of cocaine hydrochlorate.

EXPERIMENT No. 40. Dog; weight, 9.183 kilos.

1st hour before sect'n	15.895	20.009	39.88	39.32	— 0.56	21.4	Section 3 mm. from pons.
2d " " "	18.156	19.625	39.32	39.12	— 0.20	22.0	
1st " after "	15.958	24.332	39.60	38.46	— 1.14	22.3	
2d " " "	19.742	21.211	38.46	38.26	— 0.20	22.1	
3d " " "	17.107	18.135	38.26	38.12	— 0.14	21.8	

EXPERIMENT No. 41. Dog; weight, 7.493 kilos.

1st hour before sect'n	25.622	27.000	39.51	39.28	— 0.23	21.9	Section 3 mm. from pons.
2d " " "	26.541	16.900	39.28	29.22	— 0.06	21.5	
1st " after "	23.657	31.800	38.98	37.79	— 1.19	21.1	
2d " " "	13.571	27.300	37.79	36.00	— 1.79	22.2	
3d " " "	7.511	21.900	36.00	34.10	— 1.90	21.2	
4th " " "	9.909	18.300	34.10	32.70	— 1.40	21.5	

EXPERIMENT No. 42. Dog; weight, 7.823 kilos.

1st hour before sect'n	24.641	25.392	39.65	39.53	— 0.12	21.5	Section 4 mm. from pons.
2d " " "	26.639	27.462	39.53	39.40	— 0.13	21.0	
1st " after "	9.781	21.800	39.50	37.58	— 1.92	21.6	
2d " " "	13.925	21.812	37.58	36.32	— 1.26	21.2	
3d " " "	6.763	17.400	36.32	35.10	— 1.22	21.2	

EXPERIMENT No. 43. Dog; weight, 8.276 kilos.

1st hour before sect'n	26.055	27.048	39.43	39.28	— 0.15	21.9	Section through middle of crura.
2d " " "	32.185	31.788	30.28	39.30	+ 0.06	21.8	
1st " after "	17.586	30.200	39.38	38.23	— 1.15	22.3	
2d " " "	14.388	25.700	38.23	36.52	— 1.71	22.2	

EXPERIMENT No. 44. Dog; weight, 14.866 kilos.

1st hour before sect'n	49.406	51.430	39.46	39.29	— 0.17	21.3	Section close to pons.
2d " " "	43.651	45.675	39.29	39.12	— 0.17	21.3	
1st " after "	22.377	30.939	38.80	38.08	— 0.72	20.9	
2d " " "	30.807	32.940	38.08	37.90	— 0.18	21.1	
3d " " "	27.428	31.830	37.90	37.53	— 0.37	21.5	

EXPERIMENT No. 45. Dog; weight, 10.231 kilos.

1st hour before sect'n	27.704	31.142	39.50	39.08	— 0.42	21.3	Section close to optic thalami.
2d " " "	24.003	25.885	39.08	38.98	— 0.10	21.5	
1st " after "	30.092	32.300	39.26	38.93	— 0.27	21.9	
2d " " "	23.379	31.400	38.93	37.95	— 0.98	21.8	
3d " " "	14.542	25.100	37.95	36.65	— 1.29	21.9	

EXPERIMENT No. 46. Dog; weight, 7.792 kilos.

1st hour before sect'n	27.202	29.850	39.56	39.22	— 0.34	20.7	Section close to optic thalami.
2d " " "	28.500	28.500	39.22	39.22	± 0.00	20.3	
1st " after "	23.600	48.900	39.10	38.42	— 0.68	20.4	
2d " " "	19.411	25.800	38.42	37.60	— 0.82	20.7	

(5) *Lesions of the Pons.*—Tscheschichin,[1] in a single experiment, records that division of the pons from the medulla oblongata was followed at once by a marked increase of bodily temperature. Bruck and Günter,[2] in twenty-three experiments in which similar section was made or the parts punctured, found that in eleven an increase of temperature occurred, and in twelve a diminution. In eleven experiments by Wood,[3] in which partial or complete section was performed, an increase occurred in eight and a decline in three. In two of the former the rise amounted to 3.25° and 4.88° F., respectively.

In six out of seven experiments (47 to 53, inclusive) in which I made section of the pons, the temperature was increased, and in one diminished. Two of them were calorimetric.

Time.	Experiments.				
	47	48	49	50	51
h. m.					
0.00	. .	. .	39.08	38.53	. .
.03	. .	39.42	. .	. .	. .
.05	38.09	.50	38.88	. .	39.82
.10	37.98	.50	39.05	.68	. .
.15	.90	.58	38.82	. .	.93
.20	.82	.62	.89	.50	. .
.25	.70	.73	39.12	. .	.98
.30	.60	.90	.30	.70	. .
.45	.38	. .	.35	.70	40.08
1.00	. .	.98	38.82	. .	.40
.15	. .	40.08	.88	. .	.42
.30	. .	.15	. .	. .	.80
.45	. .	.62	. .	. .	41.07
2.00	. .	.88[4]	. .	. .	.30
.15	. .	41.28	. .	. .	.45
.30	. .	.30[5]	. .	. .	.62
.45	. .	42.20[6]	. .	41.40	.85
3.00	. .	.43	. .	. .	42.00
.15	. .	.68	. .	. .	.15
.30	. .	.95	. .	. .	.32
.45	. .	43.00	. .	. .	.49
4.00	. .	.23	. .	. .	.62
.15	. .	.52	. .	. .	.80
.30	. .	.70	. .	. .	.95
.45	. .	.90	. .	. .	43.20
5.00	. .	. .	. .	. .	.35
.15	. .	.66	. .	. .	.70
.30	. .	. .	. .	. .	.80
.45	. .	. .	. .	. .	44.16
.52	. .	. .	. .	. .	. .
. .	. .	+ 3.48	+ 0.27	+ 2.87	+ 4.34

[1] Du Bois Reymond's Archiv f. Physiologie, 1866, s.
[2] Pflüger's Archiv f. Physiologie, III, 1870, s. 578.
[3] *Loc. cit.*
[4] Injected intravenously 10 grammes of antipyrine.
[5] Injected intravenously 4 grammes of antipyrine.
[6] Injected intravenously 7 grammes of antipyrine.

EXPERIMENT No. 52. Dog; weight, 8.617 kilos.

	Heat Production.	Heat Dissipation.	Rectal Temperature.			Room Temperature.	Remarks.
			Beginning.	Ending.	Gain or Loss. (+ or —.)		
1st hour before sect'n	30.717	31.026	39.52	39.33	—0.19	18.6	Complete section obliquely through middle of pons.
2d " " "	25.795	26.484	39.33	39.23	—0.10	19.4	
1st " after "	22.805	27.000	38.68	38.29	—0.61	20.3	
2d " " "	31.739	28.361	38.29	38.78	+0.49	20.2	
3d " " "	32.254	30.600	38.78	39.02	+0.24	20.6	
4th " " "	31.387	29.524	39.02	39.29	+0.27	19.6	

EXPERIMENT No. 53. Dog; weight, 12.57 kilos.

1st hour before sect'n	26.994	28.703	39.60	39.43	—0.17	20.3	Complete section at junction of pons and medulla.
2d " " "	26.809	28.116	39.43	39.30	—0.13	21.2	
1st " after "	24.687	27.201	39.55	39.30	—0.25	21.5	
2d " " "	33.929	30.812	39.30	39.61	+0.31	21.7	
3d " " "	35.033	29.000	39.61	40.21	+0.60	21.0	
4th " " "	25.801	26.100	40.21	40.18	+0.03	20.6	
5th " " "	14.179	18.000	40.18	39.80	—0.38	21.0	

In Experiment 47 the animal lived for less than an hour, and the temperature fell steadily from the time of the section. In Experiments 48, 49, 50 and 51 the rises were, respectively, 3.48°, 0.27°, 2.87° and 4.34°—an average of 2.74°. In the two calorimetric experiments (Nos. 52 and 53) the maximum increases were 0.61° and 0.76°, although these figures, as in the other calorimetric experiments, doubtless do not represent the maximum rises. The results of the last two experiments render it apparent that the elevation of temperature in this series, as in those of the other series in which this change was noted, was due to an increase of heat production.

An analysis of the results of the several series, especially of the experiments in which the temperature alterations were carefully recorded, shows that, as a rule, sections of the striated bodies and pons are followed by marked and lasting elevations of the bodily temperature, and, on the other hand, that sections of the white matter just anterior to the caudate nuclei, of the optic thalami and of the crura cerebri are either not followed by a rise of temperature, or if so the increase is usually insignificant and transient. A tabular statement of certain of the data illustrates clearly the very marked differences in the mean results—

	Section Anterior to Striated Bodies.	Section of Striated Bodies.	Section of Optic Thalami.	Section of Crura.	Section of Pons.
Number of experiments . .	2	6	2	16	5
Average duration of observations . . .	2 hrs. 50 min.	3 hrs. 43 min.	2 hrs. 45 min.	2 hrs. 34 min.	3 hrs. 19 min.
Average rise of temperature .	0	2.4°	0.12°	0.8°	2.74°
Average time of the occurrence of the maximum rise of temperature . .	0	2 hrs. 53 min.	8½ min.	1 hr. 20 min.	4 hrs.

These figures clearly indicate that the nervous matter in the regions of the striated bodies and pons are in some important way connected with the heat processes, and considered in connection with the results of the calorimetric studies there can be no doubt that the function is thermo-accelerator—in other words, that in these regions are probably located thermo-accelerator centres. There is sufficient evidence already on record by various investigators to prove that such centres exist in the caudate nuclei. Regarding the pons, there can be little doubt that there are similar centres in this region, although they are most likely chiefly located in the medulla oblongata. Puncture of the pons[1] and of the medulla and direct stimulation are followed by the same results as section—*i. e.*, an increase of temperature and heat production. If, however, the section be made at the junction of the medulla and spinal cord, the temperature at once falls and continues declining to a profound degree, even though heat production be maintained at the normal standard. If the rise of temperature following lesions of the pons were due to the cutting off of thermo-inhibitory influences, the same result should occur after section of the cerebral peduncles, because the inhibitory fibres run through these channels to the parts below. The fact that the increase of temperature and heat production is as great when the section is between the medulla and the pons as when it is in the middle of the pons or higher leads to the belief that the essential part of the centre is in the medulla oblongata. But further investigation is needed to satisfactorily determine this matter.

That changes in bodily temperature should be noted after section

[1] Vide experiments by Bruck and Günter, *loc. cit.*

of the crura cerebri is only what might be expected when it is remembered that this is the pathway for both accelerator and inhibitory heat fibres to the parts below.

The results of these experiments, as a whole, add substantial support to the accuracy of the conclusions referred to in the beginning of this contribution.

OPIUM AS AN HYPNOTIC IN OLD AGE.[1]

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In the eager quest after new drugs and novel methods of treatment, so characteristic of the present day, medical men are in danger of sometimes forgetting or ignoring remedies that have been in use from time immemorial, and whose efficacy and virtues have been established on the sure foundation of clinical experience by physicians in all ages.

Insomnia is the curse of modern civilization. The feverish haste of the American people in all their pursuits and undertakings, the overwork and worry incident to the struggle after wealth, place and power, together with the utter disregard of the simplest and most elementary laws of health, causes, along with other evil effects, an over-stimulation of the brain and nervous system, often inducing the condition of sleeplessness. Persons of great mental activity, who do not give their brains sufficient rest, are likewise very liable to insomnia.

This has become such a wide-spread evil, and the demand for specifics to relieve it so urgent, that advertisements of nostrums for this purpose are spread broadcast over the country, which the laity are encouraged to prescribe for themselves. It is the opprobrium of medicine that reliable remedies cannot be found which are capable of overcoming this morbid tendency to wakefulness without being injurious to health.

Many of the older hypnotics, the bromides, chloral, and the various coal-tar derivatives, whose names are legion, are prescribed for the poor victim of insomnia; but often, after trying the whole list of such remedies, the last state of that man is worse than the first, for

> Not poppy nor mandragora,
> Nor all the drowsy syrups of the world,
> Shall ever medicine him to that sweet sleep

[1] Read at the meeting of the Centre County Medical Society, November, 1892.

he once enjoyed, and without which life becomes so great a burden that he often feels as if he would willingly exchange it for the sleep of death. To treat a symptom will not always cure the disease, nor remove the cause that has produced the symptom. It is true that in many cases of disordered function, or disease, symptomatic treatment must be resorted to for the purpose of giving relief and gaining time. Let the man with an overwrought brain take pattern after the farm laborer, whose invigorating occupation causes him to rise with the lark, and who throughout the day "sweats in the eye of Phœbus, and all night sleeps in Elysium." No sleep-producing potion can compare with the healthful results of hard work in the open air; the muscular exertion facilitates the emptying of the turgid blood-vessels of the brain, thereby equalizing the circulation throughout the body, and at the same time bringing about that salutary feeling of fatigue which makes rest so sweet.

This form of insomnia, however, is not what I intended to speak of on the present occasion. There is a condition of sleeplessness that is peculiar to advanced life, and which is probably owing to changes that have taken place in the structure of the arteries of the brain, by which they lose their elasticity to a certain extent, becoming more or less rigid, so that they do not empty themselves readily; thus maintaining a fulness of blood in the brain, that is conducive to wakefulness. But whatever may be the explanation, it is a fact that many old persons do not sleep well, and, consequently, it is very desirable to have a remedy at hand that can be depended upon to give them a calm, refreshing sleep, and that will be followed by no harmful effects. Such a remedy we have in opium. For many years I have prescribed it for this purpose, and when properly used it has never disappointed me. It is needless to say that I have tried numerous other hypnotics, without succeeding in finding one that was in every respect a satisfactory substitute.

It is not a matter of indifference what preparation of opium is administered. Physicians often have favorite prescriptions, or a special form in which to give a particular remedy; and we are, probably, all more or less likely to employ a routine method of treating any disease, which may have nothing to recommend it but the fact that "use doth breed a habit in a man."

My method of treating an old person who is confirmed in the habit of wakefulness at night is to combine Dover's powder and morphine, giving a dose at bedtime two or three times a week, or every night, as occasion demands. At first, from the twenty-fourth to the twelfth of a grain of morphine is given, along with two or three grains of Dover's powder. Of course, as the system becomes habituated to

the drug, it is necessary carefully to increase the dose, but even after a patient has taken it steadily for several years not more than a quarter of a grain of morphine to ten grains of Dover's powder is required.

According to my experience, old women are much more frequently poor sleepers than old men; probably, because they lead a more sedentary life and do not get as much out-door exercise as men. The condition of wakefulness is aggravated and made much harder to bear by the muscular pains, aches and cramps incident to advanced life, and no other hypnotic has sufficient analgesic properties to relieve the pain, as well as to promote sleep.

As before stated, my experience in the use of opium for this purpose has extended over many years, and, if given with proper caution in cases where no contra-indications exist, it does not have the deleterious effects on the systems of old persons that its long-continued employment would have on the young or middle-aged. It is best to limit the use of it, as a general thing, to persons over 70 years of age, for at that time of life its regular use is tolerated with impunity, and I never knew it to do any injury if the patient were really afflicted with the insomnia of the aged.

The combination referred to, it seems to me, is especially suited for what it is expected to accomplish. To some it might seem like sweetening honey to add morphine to Dover's powder, but allow me to explain how I came to combine them, and why I now think it is such an advantage to do so. At first, if the case were not a severe one, a small Dover's powder was given, and when it became necessary to increase the dose, a little morphine was sometimes added to avoid enlarging the bulk of the powder materially. After trying this a number of times, the result was so satisfactory that it became my invariable custom to give them together. To administer as large a dose of Dover's powder as a case might require would be almost certain to cause nausea and interfere with digestion; whereas, in giving morphine alone, there is often a great temptation for the patient to increase the dose too rapidly by taking two or three powders at one time. If more than one of the larger combined powders is taken at once, the resulting nausea will most likely deter the patient from repeating the experiment.

But the greatest advantage from giving the two together is that the small portion of ipecacuanha in the Dover's powder keeps up a healthy action of the skin, promotes the appetite, stimulates the stomach and increases the functional activity of the liver, so that the secretions are not locked up, nor is constipation so readily produced as when either opium or morphine is given alone.

I believe that I have prolonged the life of more than one aged person by this method of treatment, and I am positive that for many of

them life has been made not only endurable, but really enjoyable, by their nightly opiate.

While writing this, I have in my mind an old lady of 90, who took these "sleeping powders," as she called them, for ten years or more, and whose sprightliness and interest in life excited the wonder and admiration of her friends. She attributed the comfort she had in living mainly to the good effect of this medicine, which kept her free from pain and suffering at night, giving her such peaceful and childlike slumber that she awoke refreshed and strengthened for the ensuing day.

It goes without saying that patients should never be taken into our confidence sufficiently to let them know that they are taking an opiate; indeed, under most circumstances, it is poor policy to tell a sick person or even the family what is in a prescription. A physician shows a want of reliance on his own judgment, as well as a certain disrespect for his most honorable profession, when he discusses the proper treatment of a disease with his patient, telling him what remedies he is prescribing and his reasons for giving them; or if he furnishes medical literature to an invalid to enable him to read up his own case. A proper degree of reticence and a dignified but cheerful deportment will inspire a patient with that confidence in his medical adviser which is no mean factor in the successful treatment of very many diseases.

Opium, like everything else that is powerful for good, is equally powerful for evil; but when we see how it can ease the declining years of old age, to say nothing of its efficiency in relieving the most severe pain, or of its beneficial influence in many of the worst ills that flesh is heir to, we must acknowledge that there is no more wonderful nor valuable remedy in the whole materia medica. With the Orientals we can truthfully say that opium is the gift of God.

MEMORANDUM.

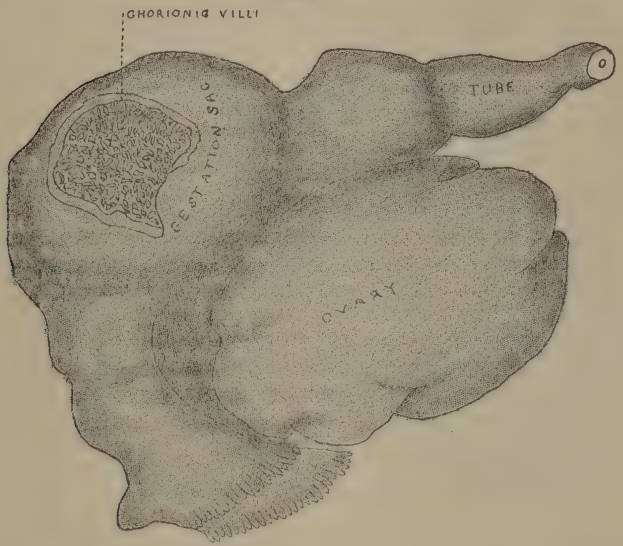
GRAVID FALLOPIAN TUBE REMOVED BY CELIOTOMY BEFORE RUPTURE.

L. G. was admitted to the Gynecean Hospital October 3, 1893. She complained of constant pain in the left iliac region, which incapacitated her from work of any kind. She had suffered with occasional pain in this region for seven years, but during the past eight months the pain had become unbearable.

Menstruation had always been regular, occurring at intervals of twenty-eight days until, four weeks before admission. Four weeks before admission she had a regular menstrual period, and two weeks later she had bleeding from the vagina which lasted four days. The blood was lighter in color and less in quantity than was usual at her regular menstrual periods. This was the only occasion in her menstrual history where bleeding had occurred from the vagina after a shorter interval than twenty-eight days.

During the month before admission the pain in the left side had been greater than before, and she had been unusually "nervous." With these exceptions her symptoms, during the two months preceding admission, were just as they had been during the year previous.

FIG. 1.



She had been married four years, but had never been pregnant.

Bimanual examination showed that the uterus was normal in size, lying with the fundus forward and to the right side. The left ovarian region was occupied by a cystic tumor, the size of a fetal head. The uterine appendages were not felt on the right side. Celiotomy was performed October 5, 1893.

An ovarian cyst, about the size of the fetal head, was removed from the left side. The cyst was generally adherent. The left tube was closed by adhesion. The tube and ovary on the right side were but slightly adherent. The abdominal ostium of the right tube was patulous. The tube was distended at about the middle to the size of the last phalanx of the thumb. It was unruptured.

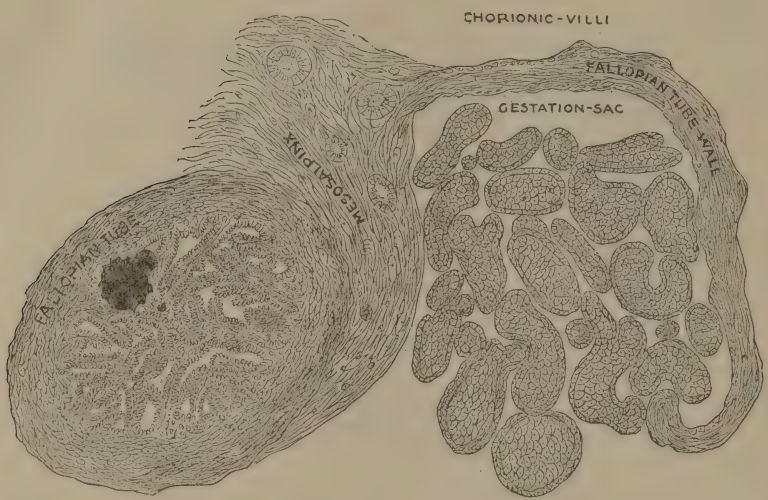
The accompanying drawing represents the appearance of the tube after a section had been removed from the wall to expose the chorionic villi.

The gross appearance of the right tube and ovary was in every way normal, except at the dilated portion. There were no indications of any previous inflammatory trouble in the right tube. The very few adhesions of the right ovary and right broad ligament seemed to have been caused by extension of inflammation from the left side.

The right tube was examined by Dr. Beyea, who makes the following report:

The examination of the specimen of unruptured extra-uterine pregnancy, removed by Dr. Penrose, reveals the following: At the

FIG. 2.



junction of the middle and outer third of an otherwise normal Fallopian tube was a dilatation the size of a small hickory-nut, from which, through an incision, chorionic villi extended. The ostium had not as yet closed, and the ovary was normal in relation and size. Combined longitudinal and transverse microscopic sections were made through the gestation sac and outer third of the tube, as represented in Fig. 2, thus showing a dilated tube wall deprived of the mucous lining and filled with chorionic villi, and the transverse section of an almost normal Fallopian tube near the distal extremity. The characteristics of the chorionic villi are typically shown in this figure. They occur in large numbers, clustered together, present an external layer of stratified, almost cubical, epithelium-like cells, and in large villi a

double row of epithelium may be detected. Sometimes the interior resembles the stratum intermedium of an enamel organ. The embryo had evidently been lost from this specimen.

The woman made an easy recovery, and left the hospital at the end of four weeks.

The interesting points in this case are: The discovery of an undiagnosed tubal pregnancy during celiotomy for another pathological condition. The removal of an unruptured gravid Fallopian tube. The absence of any symptom in the previous history which would excite suspicion of tubal pregnancy.

C. B. PENROSE, M.D., PH.D.

CLINICAL DEPARTMENT.

UNIVERSITY HOSPITAL.

[Service of Dr. JOHN ASHHURST, JR.]

FRACTURE OF SIXTH AND SEVENTH CERVICAL VERTEBRÆ.

D. J., colored, aged 23, while crossing a railroad in a cart was struck by a train, sustaining fracture of the sixth and seventh cervical vertebræ. The patient was in a semi-comatose state when brought to the hospital. He had a lacerated wound of the forehead and incised wounds of the nose and lip. The thermometer both in the axilla and rectum failed to register, thus evidencing a temperature at least below 95°. For three hours the temperature remained below this point. Then in the course of nine hours a gradual rise to 105$\frac{1}{5}$° occurred. In an equal period of time it had descended to 98°. The pulse on admission was soft and full, eighty in frequency. Respiration fluctuated between thirty-four and fifty. Patient was delirious all night. When spoken to, however, he answered rationally.

Examination of the patient discovered absolute anesthesia of the trunk below the second rib. There was also complete motor paralysis below this point. Knee-jerk and cutaneous reflexes abolished; retention of urine and feces; pupils slightly myotic; in the arms motion and sensation were but partially affected. The patient complained much of burning and formication in his arms. There was considerable impairment of power in the humeral muscles. Tactile sensation in the forearms impaired, especially upon the dorsal surface. Biceps reflex exaggerated.

Examination of the region of the fracture gave but obscure evidence. In fact, had it not been for the pressure symptoms, the diagnosis would have been impossible. Over the sixth and seventh cervical vertebræ, there was moderate tenderness on pressure. There was a certain amount of bogginess in this region, and the spine of the seventh cervical vertebra was not as prominent as it should have been. Neither crepitus nor deformity was present. The patient rested quietly, drank his liquid nourishment and seemed fairly comfortable. A bad cough from a pre-existing bronchitis harassed him considerably. The breathing was deep and labored, especially toward the end. It was evident the diaphragm was doing all the work. Paralysis of the bowel, with its resultant tympanites, served still more to augment the dyspnea.

The patient was placed flat upon his back and pulley extension applied to the head. Ergot was given to lessen the spinal congestion. Seventy hours after the injury the patient died, after a short period of unconsciousness. Death was due to respiratory failure.

After death an incision was made in the posterior cervical region and a digital exploration made. It was ascertained at once that the diagnosis had been correct. On strongly flexing the head, the finger could be introduced into the spinal canal. The body of the sixth cervical vertebra was fractured near its end. There was another fracture at the junction of the left lamina with the spinous process, so that there were three fragments. A somewhat similar condition existed in the seventh cervical vertebra. The cord in this region was pulpefied. As to the mode of production of the injury, it is quite probable that it was produced by hyper-extension of the head. The patient was thrown a considerable distance, striking in all probability upon his forehead, producing the laceration there seen.

Even after death, crepitus could not be elicited by violent flexion and extension of the head. A "snapping" sound, however, was audible when the manipulation was resorted to.

Jay F. Schamberg,
Resident Physician.

EDITORIAL.

DUBOISINE.

The alkaloid of *duboisia myoporoïdes* has been employed somewhat extensively as a mydriatic for the last fifteen years, attention having been first called in this country to its use in ophthalmic practice by Norris in 1879. According to Ladenburg, duboisine has the same chemical composition as hyoscyamine. This, however, does not imply that the two alkaloids are identical in their physiological action. On the ciliary muscle and iris its action is more prompt and powerful and at the same time more evanescent than that of atropine. The instillation into the eye of solutions of duboisine of the strength in which atropine is commonly employed has not infrequently caused severe constitutional disturbance, while solutions of half that strength have proved quite effective but harmless. Its rapid action, comparative freedom from irritating properties and the short duration of its influence make it specially useful in refraction work.

Recently, the internal use of the drug has attracted considerable attention. Like atropine, duboisine in large doses ($\frac{1}{20}$ of a grain) causes restlessness, dilatation of the pupils, dryness of the throat, giddiness, and an increase in the rate and tension of the pulse. It differs from atropine, however, in that small doses ($\frac{1}{40}$ of a grain) cause lassitude and sleep. In its action on the cerebrum it resembles hyoscine, although the sleep which follows its use is not as quiet or refreshing as that produced by the latter drug.

Lewald, Belmondo and Preininger have each employed duboisine sulphate as a sedative and hypnotic in numerous cases of mental disease, with excellent results. They all have observed dryness of the throat, drowsiness, mydriasis and weakness follow its use, and agree that doses of $\frac{1}{30}$ of a grain should not be exceeded.

According to Mendel it is most valuable in insanity associated with great physical excitement, provided the latter is not due to hallucinations or delusions. He does not believe it to be very useful as a pure hypnotic, since it does not produce sleep in paranoia, melancholia, etc., when the latter are unassociated with restlessness. He attributes its somnifacient effect to the suppression of motor excitement.

Mazzocchi and Antonini have employed it in doses of $\frac{1}{20}$ to $\frac{1}{60}$ of

a grain more than two hundred times in thirty insane patients. In twenty of these cases it produced sleep in from fifteen to twenty minutes, lasting five or six hours. In no instance did it produce untoward results.

Rabow has used it on more than four hundred occasions in lunacy practice. In the excited insane, $\frac{1}{20}$ to $\frac{1}{60}$ of a grain invariably produced sleep, which, however, was often attended with dryness of the throat, mydriasis, headache and giddiness. Since the sleep is not refreshing, he does not recommend it as an ordinary hypnotic.

Mongeri, of Milan, has recently written a monograph on the action of duboisine in mental diseases, in which he draws the following conclusions: Duboisine should be used as a sedative in the maximum dose of $\frac{1}{40}$ of a grain and a minimum of $\frac{1}{120}$ of a grain. It is preferable to other sedatives on account of its prompt action and the ease of its administration. It should, however, be used by preference in the evening, in order to combine the effects of natural inclination to sleep with the sedative effects of the drug. It may be used in all forms of insanity, especially in violent mania and acute alcoholism, but it is generally useless when there is depression or asthenia.

Montyel also confirms the value of duboisine in the excited forms of insanity, but states that in several instances, especially in general paralysis, tolerance soon became established, and that vomiting and emaciation sometimes followed its prolonged use.

Good results have also been obtained with duboisine by Samuely, Albertoni, Mendel and others in nervous diseases characterized by motor excitation, such as paralysis agitans, chorea and hystero-epilepsy.

From the foregoing it will be observed that we have in duboisine sulphate a remedy of considerable value in certain types of nervous and mental disorders, and one which may be employed with advantage when older sedatives fail, or used as an alternate when tolerance renders them ineffective.

ALUMNI NOTES.

Of the graduates of the Medical Department of the University of Pennsylvania practicing in California, Dr. R. J. Mohr is located at Pasadena; Dr. George W. Fowler, of the class of '92, at Santa Clara; Dr. Irvin N. Frasse, class of '90, at San Jose, and Dr. William A. Edwards, class of '81, at San Diego.

Of the forty-one medical examiners of the Pennsylvania Railroad

Relief Department seventeen are graduates from the Medical Department of the University of Pennsylvania, as follows: Dr. S. W. Latta, '68; Dr. J. A. Finley, '72; Dr. H. E. Westhaeffer, '75; Dr. S. M. Crawford, '78; Dr. W. F. Campbell, '80; Dr. D. W. Nead, '81; Dr. H. K. Weiser, '81; Dr. J. U. Hobach, '84; Dr. W. J. Ickes, '84; Dr. M. G. Simpson, '84; Dr. W. G. Moorehouse, '85; Dr. S. A. Bonnaffon, '88; Dr. W. B. Diefenderfer, '88; Dr. P. H. Steltz, '88; Dr. D. M. Easter, '88; Dr. D. P. Rettew, '90; Dr. J. B. Hileman, '91.

The remaining twenty-four are graduates from ten different medical colleges.

Appointments to these positions are made only after a rigid competitive examination.

Necrology.

Dr. William Jordan Bates Baird died at Cle-Elum, Washington, on November 30, 1893. He was taken ill in the mountains, and died on the road to Seattle after an attack of rheumatic endocarditis which caused an embolus of the central blood-vessels. He was 24 years of age and a graduate of the Medical Department of the University of Pennsylvania of the class of 1891. His former home was in Wheeling, West Virginia, where his body was sent.

Dr. James F. Gayley died on January 9, 1894, at his residence, 133 South Eighteenth Street, Philadelphia, in the seventy-sixth year of his age. He graduated from the University of Pennsylvania in 1848, and continued in the practice of his profession until a few weeks prior to his death.

[University Alumni are requested to send items of interest suitable for this department to Dr. Joseph P. Tunis, Secretary and Treasurer of the Alumni Society, 129 S. Eighteenth Street, Philadelphia, Pa.]

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D.

Anemia in Children.

Fortscheimer (*Archives of Pediatrics*, November, 1893) concludes his paper on the above subject as follows: (1) In the anemias of children the hemoglobin suffers greater reduction than the red corpuscles; (2) if the hemoglobin can be increased, this will produce an increase of the red corpuscles; (3) hemoglobin, having its principal origin in the intestine, can be increased by the internal administration of various remedies, having for their action: (*a*) An antiseptic effect, preventing in this manner the destruction of the precursors of hemoglobin; (*b*) a direct supply of hemoglobin (from blood or blood products); (*c*) to a certain extent by the administration of iron compounds.

The Bacteriology of Diphtheria.

Veillov (*Semaine Médicale*, September 20, 1893) gives a *résumé* of the Klebs-Löffler bacillus and other bacteria influential in producing or favoring complications of this disease. The Klebs-Löffler bacillus, having gained access to the excoriated skin or mucous membrane, rapidly multiplies there. The parasite vegetates on the *surface*. "They never penetrate the mucosa; they never invade the glands, the internal organs, or the blood." They generally produce a false membrane, but their activity is not limited to this. They secrete a toxine, which is readily absorbed and poisons the whole organism. It is attenuated or destroyed by a temperature of 140° to 212°. It is this toxine which produces the general prostration, the fatty degenerations, the nephritis, the paralysis, etc.

The disease is primarily local, but very soon becomes general. The diphtheritic bacillus and its toxine do not explain all the complications of the disease. Various germs, mostly cocci, invade the mucous membrane, perhaps the internal organs, and greatly aggravate the disease. The streptococcus and pneumococcus are the most common germs. He divides the conditions due to the different organisms as follows: Local accidents due to the Klebs-Löffler bacillus; general accidents due to the toxine; accidents due to infection. The treatment is hence varied. He advises brushing the membrane with cotton wool wrapped around forceps. Rather than tear the membrane loose he uses sprays. He uses boric acid saturated solution, with 1 per cent. lactic acid added. He believes sero-therapy has a brilliant future as a remedial means.

Chronic Glycosuria.

Duckworth (*British Medical Journal*, October 7, 1893) calls attention to that class of cases which presents saccharine urine without any of the typical symptoms of diabetes. His treatment is a modified diet, not a complete exclusion of starches and sugars. He believes in the moderate use of alcoholic drinks—Bordeaux and Moselle being preferable, though diluted whiskey may be used. He does not consider it advisable to use opium in any form. He believes alkalies given in effervescence to be much preferable. Strychnine and arsenic he considers of the greatest value. While arsenic is not a curative agent, it is of inestimable value in all cases. The more regular and equable the life led the less are the inroads made by diabetes.

Hernia of the Liver.

Kusmin (*Berliner klinische Wochenschrift*, October 30, 1892) reports the following case: A woman, aged 28 years, presented herself at the clinic with a tumor in abdominal wall. This tumor had appeared one year previously, between the ensiform and the umbilicus. It was at first the size of a walnut, and gradually increased to the size of an egg. It was smooth and rounded and somewhat painful. About once a month the tumor would greatly enlarge and become painful, and after remaining in this condition for some hours would again assume its former size. On examination a circular sac was discovered, eight inches in diameter. This contained a smooth, round body, partly covered with liquid.

An operation was done, and the body was found to be part of the left lobe of the liver.

Direct Electrization of the Stomach.

Einhorn (*Zeitschrift für klinische Medicin*, Vol. 23, Parts 3 and 4, 1893) has treated forty-two patients suffering with various diseases of the stomach by means of direct electrization of the stomach. Forty of the patients were improved, the greater number were cured, as shown by improved conditions of the gastric juice as well as disappearance of symptoms. The patients were also treated with medicine and allowed to eat as usual. The sittings at first were given every other day, later, twice a week for three weeks. The sittings are conducted as follows:

Faradization.—The electrode is swallowed and connected with the negative pole of the battery; each sitting lasts ten minutes. First a broad electrode on the stomach for five minutes. Then a small electrode is used and passed from left to right over the region of the stomach. If there is much constipation it is passed along the line of the colon. The current must not be severe enough to give pain.

Galvanization.—Negative pole in the stomach eight minutes. First two minutes under the ensiform. Then for three minutes the pole must be moved about the region of the stomach. Usually 15 to 20 milliampères are required.

He concludes as follows: (1) Direct faradization of the stomach increases the act of secretion; (2) the resorption of substances from the stomach is quickened by direct electrization; (3) it is an active agent for use in chronic diseases of the stomach; (4) faradization is most useful in dilatation and atonic conditions of the pylorus and cardia, as well as in chronic glandular gastritis; (5) galvanization is an almost sovereign remedy against gastralgia of a nervous origin or due to ulcer; (6) galvanization has a beneficial effect on many heart affections dependent on gastralgia.

Treatment of Hysterical Aphonia.

Seifert (*Berliner klinische Wochenschrift*, October 30, 1893) thus treats cases of the above disease: The patient is first made to take repeated deep inspirations. After the subject has learned to inspire deeply, the larynx is firmly grasped by the upper posterior part of the thyroid cartilage and gentle but firm compression made. While the inspirations are taking place and the compression being made, the larynx is gently shaken. During the inspiration the patient is encouraged to phonate. After she has learned to do this she is asked to count from one to twenty. While the counting is going on the compression is somewhat relieved, but the fingers are still kept on the larynx. If any number is not spoken clearly, the compression is again made. Usually the patient can be made to speak at one sitting. The patient's general condition is, of course, given due attention.

Clinical Phenomena of Diphtheritic Affections of the Kidney.

Baginsky (*Archiv für Kinderheilkunde*, Vol. xvi, Parts 3–6, 1893) reports his observations on 279 cases of diphtheria as follows: One hundred and thirty-one of the cases had albuminuria in light or severe form. Of these 50.37 per cent. died. One hundred and forty-eight cases were without albuminuria. Of these 14.2 per cent. died. Of the 279 cases, 91 had tracheotomy performed. Sixty-one of these tracheotomy cases had albuminuria, and 68.9 per cent. died. Of the 30 tracheotomy cases without albuminuria, 63.3 per cent. died. He concludes:

(1) Cases of diphtheria without albuminuria, while they are by no means harmless, offer a much better chance for the life of the patient than when complicated by albuminuria.

(2) In cases of diphtheria in which tracheotomy has been done, albuminuria is not so serious a symptom as in those cases which run their course without tracheotomy, but even in these cases the result is better in those cases free from albuminuria. In the cases of a *slight* degree of albuminuria the amount of urine is little, if any, diminished. The specific gravity is not altered; dropsical symptoms seldom appear. In some cases, however, the first symptoms of nephritis may be acute edema of the larynx or of the tracheotomy wound. Uremic symptoms are seldom present. Cylindroids, kidney epithelium and leucocytes are found in the urine. With the disappearance of the membrane in the pharynx the elements disappear from the urine. In *malignant* cases: (1) The amount of the urine rapidly diminishes; (2) large amount of albumin is found in the urine; (3) renal epithelium in process of disintegration, leucocytes, cylindroids, casts and red corpuscles appear in large amounts. The author makes a third group in which the nephritis is manifested about the same time that general systemic poisoning is noticed, as shown by paralysis, etc.

He believes light cases of diphtheria should be given a milk diet, and not too much alcohol or bouillon or eggs. Irritant iron preparations he believes should be omitted. After albuminuria has disappeared, the patient can quickly return to meat diet, eggs, alcohol, etc.

In malignant cases we can do but little for the kidney affection. In the subacute or third class of cases, milk diet, yolk of egg with wine and spirits should be used. Where the heart's action is irregular, digitalis or strophanthus may be given.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

The Disinfection of Knives for Operation.

Ihle (*Centralblatt für Chirurgie*, No. 44, 1893) claims that too little attention is often given to the sterilization of cutting instruments. Boiling the knives in a 1-per-cent. soda solution is of no value, so far as the anti-rusting properties of the soda are concerned, because the water often contains lime or chalk in solution, and thus causes an immediate deposit of the soda as an insoluble compound. Only the best crystallized soda should be used, and in strength of from 3 to 4 per cent.

The Percussion and Auscultation of the Long Bones as a Means of Diagnosing Fractures of the Diaphyses.

Vajana (*Reforma Medical*, 1893) suggests a new method of diagnosing fractures of the diaphyses of the long bones when the usual signs cannot be made out. A stethoscope is placed over the bone some distance from the seat of injury. Near to the stethoscope a plessimeter should be fastened, and on which an assistant should percuss with a small hammer. Immediately a disagreeable sound is heard; and as the seat of fracture is approached the sound becomes less disagreeable, and over the seat of fracture can be scarcely heard.

The Disinfection of Septic Wounds.

Schimmelbush (*Centralblatt für Chirurgie*, No. 30, 1893), in his experiments made upon animals as regards disinfection of septic wounds, says that he was unable to prevent septic infection. As antiseptics, corrosive sublimate, carbolic acid, lysol, clay and chloride of zinc were used. The infections were made with a virulent streptococcus and milzbrand bacilli. The probable cause of the failure resulted from the very rapid absorption of the virus from the wound; and if the organisms are not quickly absorbed they get so rapidly into the interstices of the tissues as to be entirely out of the reach of the antiseptic fluid.

Experimental Examination as Regards the Effect of Compresses and Sponges Left in the Abdominal Cavity.

Jalajuier and Manclaive (*Centralblatt für Chirurgie*, No. 46, 1893), after a number of experiments made upon animals, say that, whether in the pleural or abdominal cavity, foreign bodies have a tendency to work their way toward the skin or internal organs. The foreign bodies may become encapsulated, be reabsorbed, or they may become fastened to the intestine, and through abscess formation an ulceration escape with the pus. Irritation of the intestine by a foreign body so changes the walls of the gut as to allow the ready transmission of micro-organisms.

The Treatment of Hemorrhoids.

Reclus (*Gaz. de Hôpitaux*, No. 35, 1893) speaks of the use of hot water for the relief of painful hemorrhoidal tumors. Tampons, wet with a 2 per cent. cocaine solution, should be kept in contact with the anus. In order to give a more certain relief the anus should be dilated with a bivalve speculum, with or without anesthesia. A tampon wet with a 2 per cent. cocaine solution is inserted in the ampulli recti for two or three minutes. An injection of a 1 per cent. solution of cocaine is made directly into the substance of the sphincter muscle. The speculum is then introduced and maximum dilatation made.

Reclus has treated sixty cases after this method with only one failure. The relief was absolute, and the condition did not return. The author has never seen any disagreeable or dangerous symptoms result from this treatment. If it is thought likely that there will be a return of the trouble, the pile tumors should be cut off with cocaine anesthesia.

Ligation of the Internal Iliac Artery for Prostatic Hypertrophy.

Bier (*Wiener klinische Wochenschrift*, No. 32, 1893) claims that benign glandular tumors can be made to absolutely disappear by ligation of the principal blood supply.

As the origin of the blood supply of the prostate varies, it was found necessary to ligate the principal trunk, the internal iliac. One side ligation when the enlargement is one-sided, and both when there is a general enlargement. The artery is ligated near its origin. The technique is as follows: A curved incision with the convexity outwards, twelve centimetres long, beginning two fingers' breadth to the inner side of the anterior superior spine, parallel with and two fingers' breadth above Poupart's ligament. The abdominal tendons and muscles are divided down to the peritoneum. The peritoneum is then separated from the pelvic walls until the division of the common iliac is reached. An assistant draws the peritoneum to the inner side. The artery is tied with two ligatures and divided between them. The wound is closed in the ordinary manner.

Three cases have been operated upon in this manner and followed by immediate benefit, and a considerable diminution in the size of the growth.

The Retention of Urine After Operations.

Guepin (*Gaz. de Hôpitaux*, No. 33, 1893) says that retention of urine after operation may occur at any age from puberty on. It is especially noted after abdominal operations or those on the lower extremities.

There are two clinical forms, an indolent and a painful form. The first appears when the organs are quite healthy, and the latter in those who have diseased urinary organs. The duration of the retention varies from eight, ten or twenty-four hours to three days. The cause of this condition is supposed to be due to a swelling of the mucous membrane of the urethra. According to the author, however, there are three causes:

(1) Spasm of the urethra, especially of the pars prostatica.

(2) Paralysis of the bladder.

(3) The abnormal position of the patients, as upon the back.

In the treatment of this condition the patient should be told to stand up when possible; if this fail, warm clysma might be given. When this fails the catheter should be used.

VARIOUS METHODS FOR EXTRACTING FOREIGN BODIES FROM THE BLADDER.

BRISSON (*Thèse de Paris*, 1893) reports forty-nine cases of foreign bodies in the bladder which have come under his care. When there is no incrustation, and when the object is thin, it may be removed with the forceps, in women, or by crushing and extraction.

They can be removed by lithotripsie when there is but little danger of wounding the vesical walls. If the foreign body be hard and not very long, it should be removed with lithotriptors with broad blades. When the body is very hard, and there is danger of wounding the vesical walls, abdominal section is to be done.

When incrustations have formed, lithotripsie should be done, when the foreign body and stone can be crushed at once.

A REPORT OF SIXTY-NINE CASES OF CANCER OF THE TONGUE.

SACHS (*Archiv für klinische Chirurgie*, Band XLV) gives the operative results of sixty-nine cases of cancer of the tongue. In fifty-eight of the cases the radical operation was performed, and in eleven palliative operations were done, such as ligation of the lingual artery, the carotid and resection of the lingual nerve.

As to the etiology of carcinoma of the tongue, the most common cause is the chronic inflammation resulting from chewing and smoking tobacco, wounds, burns, irritation from bad teeth.

According to Jacobson there are eight forms of the pre-cancerous stage :

(1) Glossitis, with hypertrophy and the formation of fissures.

(2) Leukoma.

(3) Ichthyosis.

(4) Bald tongue, a form of chronic inflammation with destruction of the papilla.

(5) Papilloma.

(6, 7) Fissures and cracks.

(8) Ulceration.

In certain districts where brandy is freely drunk cancer of the tongue is quite common. Syphilis occasionally causes carcinoma, because of the resulting chronic inflammation.

Of the sixty-nine reported cases sixty-six were males and three females. Forty-six of the cases were between 40 and 60 years of age. The youngest was 23 and the oldest 76 years of age. In twenty-five cases the tongue was alone involved; in two cases, the entire tongue; in three, more than half; in seven, the half, and in thirteen, less than half. In forty-one cases the tonsils and soft palate were involved. In the majority of cases the cervical glands were early involved. In suspicious cases it is often well to give large doses of iodide of potash to differentiate from syphilis. In eighteen of the fifty-two cases of radical operation the tongue was removed through the mouth; in two, by splitting the cheek; in twenty-one, by temporary resection of the lower jaw; in twelve cases, through the submandibular space (Kocher's method). Six cases died immediately after the operation, and fifty-one recovered. In extensive cases the removal of the tongue through the submandibular space is attended with the least mortality, 8.3 per cent. Of thirty-eight cases operated upon, in thirteen there was no return of the disease. One case died eight years later of carcinoma of the breast. In twenty-five cases there was a return of the disease; twenty within the first seven months, and one each after ten and twelve years.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Olive Oil in Obstructive Jaundice.

Oliver (*Lancet*, No. 3658, 1893) reports two cases of simple obstructive jaundice successfully treated with olive oil. The first patient complained of sudden attacks of severe pain in the upper part of the abdomen, which of late had become more frequent and severe, and had occasionally been attended with vomiting and followed by jaundice. On account of increasing debility the writer finally prescribed olive oil, beginning with one tablespoonful in milk daily and gradually increasing the amount to six tablespoonfuls. With the exception of a slight attack of colic on the second or third day after the treatment with the oil was instituted, the patient had no further pain and no return of jaundice, and is now in better health than he has been for the last five years. Treatment was continued for several weeks after the disappearance of the symptoms, and in addition to the oil he was given two grains of calomel twice a week, and a few drops of extract of cascara sagrada every evening.

The second case, a woman aged 48, had been deeply jaundiced for ten months. The abdomen was retracted and the liver enlarged. She was very feeble and her mind was depressed. As all other remedies had proved futile she was given daily two tablespoonfuls of olive oil in warm milk. Within three weeks the jaundice disappeared, the stools became normal and there was a remarkable improvement in the general condition. The author is unable to give any explanation of the action of the oil in these cases.

Menthol in Cutaneous Affections Attended with Itching.

Colombini (*La France Médicale*, No. 22, 1893) speaks highly of menthol in eczema of the scrotum, vulva, etc. He prescribes it as follows:

℞ Menthol . . . . . 5– 10 grammes.
Alcohol . . . . . 100 grammes.

Or,

℞ Menthol . . . . . 10 grammes.
Oil of sweet almonds . . . . . 10 grammes.

Or,

℞ Zinc oxide . . . . . 25 grammes.
Powdered starch . . . . . 25 grammes.
Vaseline . . . . . 50 grammes.
Menthol . . . . . .5–.3 gramme.

Or,

℞ Zinc oxide . . . . . 10 grammes.
Bismuth subnitrate . . . . . 10 grammes.
Menthol . . . . . 1– 3 grammes.
Powdered starch . . . . . 1–30 grammes.

When the application is intended for mucous surfaces the amount of menthol should be reduced.

Diaphtherin.

Stabel (*Münch. med. Woch.*, September 10, 1893) has studied the germicidal and pharmacological actions of this new compound. Broth to which diaphtherin was added was inoculated with various kinds of micro-organisms, and similar experiments were conducted with lysol and carbolic acid. The writer believes that diaphtherin is considerably superior to both of the latter germicides. Anthrax spores lost all power of growth after being in a 15 per cent. solution for three days. From a series of experiments on animals he concludes that even the continued use of diaphtherin in man cannot be injurious, as it could not be used in sufficient quantities to be dangerous. It is especially adapted, on account of its non-toxic properties, to washing out hollow cavities where at present very weak antiseptics have to be employed. It is preferable in 1 or 2 per cent. solutions to other antiseptics where moist applications are required for a long time, as in burns, ulcers, etc. It only discolors the nails and hands when previously soaked in sublimate solution. Steel instruments cannot be put into it.

Salipyrin in Uterine Hemorrhage.

Kayser (*Deut. med. Woch.*, October 29, 1893) has employed salipyrin in uterine hemorrhage from various causes, including cases of cancer and abortion. In three of the sixteen cases treated the bleeding was so free as to necessitate curetting, and in these it could not be stated whether a more prolonged use of the drug would have brought about the desired effect. In a case of myomatous endometritis it was given without results. In the remaining twelve cases it gave unmistakably good results. In two of these no examination was made, and the diagnosis was in doubt. Of the remaining ten, five were cases of metritis, two of stenosis of the internal os, with consecutive endometritis, one of inflammation of the appendages, one of old peritonitis and one of submucous fibroid. In all these the duration and quantity of the menses were diminished. Pain was not relieved by this drug. In four of the eight cases the good effects were permanent, in one the hemorrhage resumed after the discontinuance of the drug and in three no further information was obtained.

The writer believes that salipyrin may be particularly useful in the hemorrhage preceding the menopause. The single dose was fifteen grains and the daily dose forty-five grains. It should be commenced at the beginning of menstruation or, preferably, the day before.

The Therapeutic Uses of the Nitrites.

Leech (*Lancet*, No. 3646, 1893) concludes from his studies of the nitrites that they influence more or less all the tissues of the body, but especially the blood and muscles. They convert the oxyhemoglobin into methemoglobin, but it is probable that this latter is easily reconverted into the former by contact with living structures, and that it does not interfere with the power of the blood to nourish the heart muscle. There is no cause to fear injury to the blood from medicinal doses of nitrites. The nitrites tend to decrease the contractile power and duration of vitality in striated muscular tissue. On involuntary muscles the nitrites exert a powerful paralyzant effect, and to this cause is attributed the dilatation of the arteries which follows their use. On the heart muscle the effect is similar to that on the vessels. The nitrite group, in any combination, tends to quicken the heart but to weaken its contractions. When the drug comes in contact with the heart in dilute form, the quickening which it induces may more than counteract its weakening effect, so that more work may be done for a short time. Stronger solutions first quicken, then slow, weaken and arrest the contractions of the heart.

Although the heart is very susceptible to the influence of the nitrite, the evil effects are evanescent when the drug is withdrawn.

Nitrites depress the nerve centres and nerves, but not to the same extent that they influence the muscles, vessels and heart. In toxic doses they cause heaviness and apathy and cerebral depression, probably from their direct action. In man, even in toxic doses, they do not seem to affect the spinal cord. Locally they have no analgesic effect. Medicinal doses seem to stimulate the respiration, at least, so far as the respiratory centre is concerned. Their action on the pulmonary vessels is still undetermined, but the author believes that these vessels are dilated, that the right heart is thus relieved of strain, and that the good results in dyspneic attacks may be attributed to this influence on the lesser circulation. The effect on the digestive organs varies. In some they induce gastric irritation and diarrhea. Even when inhaled their elimination through the alimentary canal may cause these symptoms. The writer regards them as useful, non-irritating diuretics. He notes three points in reference to their therapeutic application: (1) The small amount required to influence the muscular system—one-eighth grain of sodium nitrite, a small but uncertain fraction of a minim of ethyl nitrite, and 1-1600 grain of nitroglycerin; (2) notwithstanding their potency, even larger quantities do not cause death; (3) the action of the nitrites is very evanescent.

The nitrites will be most serviceable in those cases in which the heart is embarrassed owing to a want of due relationship between its power and the calibre of the vessels through which it transmits its blood. In angina pectoris they have a threefold object: (1) To relieve pain as rapidly as possible; (2) to avert a fatal termination; (3) to prevent a recurrence of the pain. To relieve the pain and its concomitant danger the fatty nitrites should be inhaled, of which an example is amyl nitrite, although it is impure as now found. The amyl nitrite may fail: (1) If the paroxysms are due to neuralgia of local origin, or if reflected or hysterical, and if circulatory changes have but little part in their production; (2) because of the short duration of its action it does not break the spell of the vessels' contraction; (3) the person may be insusceptible to its influence; (4) the case may be an advanced one which would have been relieved at an earlier stage. In these cases the nitrites whose effects are more lasting should be tried. Of these, nitroglycerin is the best, as it reduces tension more quickly than either sodium or ethyl nitrite. In the dyspnea of other forms of cardiac disease and of pulmonary disease the nitrites are of great service. They are naturally more useful in mitral disease than in aortic troubles, because in the former paroxysmal dyspnea is more common, but aortic incompetence is no bar to their administration in small quantities when breathing is oppressed. In cardiac disease, weakness and irregularity of the heart's action need not be considered in giving small doses for dyspneic attacks, since such doses do no harm even if they do no good. Syncope might appear to be a contra-indication to the use of nitrites. In some cases, however, it is apparent that they may prove useful. In cardiac failure good results have followed, but the difficulty is to graduate the amount of the drug to the necessities of the case. In pulmonary dyspnea the result is rather uncertain; at times the symptom is benefited, while the physical signs are unchanged. When abundant moist râles are present and dyspnea is due to an accumulation of mucus rather than spasm of the tubes or vessels, they are likely to fail. In uremic dyspnea the results have been at times disappointing. In some cases the necessary dose may be large. In migraine and headache these drugs have been much employed, and considerable success has been recorded in their use. In migraine they are of more use when the face is pale and the pulse is tense. The cases must be those in which there is high vascular tension.

OBSTETRICS.

UNDER THE CHARGE OF
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Dührssen's Tamponade of the Utero-vaginal Canal.

Siepen (*Deutsche medicinische Wochenschrift*, No. 21, 1893) applied the forceps to the head at the superior strait in a xii-para, after the labor-pains had fully ceased for nine hours. After the extraction of the child there was copious hemorrhage, which did not cease after the manual separation of the placenta. As symptoms of acute anemia appeared he tamponed the uterus with iodoform gauze by inserting the index-finger of the left hand into the cervix and placing the gauze in position with a forceps held in the right hand. After tamponing the uterus the vagina was filled with cotton. The hemorrhage ceased. Both tampons were removed after twenty-four hours. The puerperium was normal.

A Case of Tuberculosis of the Placenta.

Lehmann (*Deutsche medicinische Wochenschrift*, No. 9, 1893) found a tubercular disease of the placenta from a pregnant woman who died from miliary tuberculosis and in whom the peritoneum and intestine were not involved. The tubercles, with typical giant cells containing tubercle bacilli, were found in the layer of chorionic villi. It could not be with certainty determined from whence the process was conveyed. Lehmann considers it perfectly reasonable that, by the close connection of the placenta materna and fetalis, a similar progressive destructive process, either spreads directly by contiguity from the mother to the child, or, in consequence of the rupture of necrotic masses from the decidua into the chorionic villi, an infection of the child is possible. He also states that nothing has been recognized, through his observations, either for or against the heredity of tuberculosis.

The Delivery of the After-coming Head and the Protection of the Perineum.

Ostermann (*Berliner klinische Wochenschrift*, No. 20, 1893) calls attention to the fact that in the obstetrical text-books the protection of the perineum during the extraction of the after-coming head is not sufficiently emphasized. This is of great importance in not particularly large vaginal orifices, and especially in primiparæ. He recommends the following procedure, which is carried out in Martin's Policlinic at Berlin: The middle finger of the right hand is placed in the mouth of the child, which rests with its abdomen upon the right forearm, while the left hand presses the head through the pelvis externally. At the moment when the forehead appears the pressure of the left hand ceases, and with it the feet of the child are raised, or the feet may be raised by the nurse, and the child laid upon the mother's abdomen. At the same time the finger of the right hand is removed from the child's mouth, and the hand is placed upon the perineum. The fingers of the left hand are then placed in the child's mouth with the elbow directed upward.

This second part of the operation may be performed under close inspection and the perineum protected in the same manner as in head presentations. By pressure from above or traction upon the lower jaw the forehead may be caused to pass more rapidly over the perineum. In this position the aspiration of mucus into the trachea is not favored and the mouth may be washed, if desirable, before extraction is completed.

Operative Interference During the Second Stage of Labor.

McGillicuddy (*Medical Record*, October 21, 1893) states that except in rare instances, such as cases of eclampsia, hemorrhage, or obstructions, there should be no operative interference during or before the first stage of labor. He regards the general belief that the bag of waters is of no service after the cervix has been dilated, and that the progress of labor is suspended until it is ruptured, to be erroneous. The artificial rupture of the membranes, even when the head is on the perineum, he considers not always judicious. While each case is to be treated upon its own merits, he disfavors interference so long as the child or mother is not in danger, it matters not how long the woman is in labor. In protracted labors, rather than apply the forceps, on account of the apparent suffering of the patient, and the importunities of relatives and friends, he advises the use of anodynes and anesthetics. He refers to the value of manual or bandage pressure in assisting the uterine contractions in expressing the fetus. In performing the former the hands should be spread out over the fundus, and firm but not too severe pressure made during the pains. If the patient is lying upon the side a large roller bandage or towel may be passed over the abdomen, twisted behind into a knot, and drawn tightly during each contraction. He believes three per cent. to be a fair average for interference. Mild delirium, even, he believes not to be an absolute indication for hastening the labor by instrumental interference. A rise in temperature, weakness and rapidity of the mother's pulse, or feebleness and irregularity of the infant's, he mentions as indications that there is no time for delay.

Episiotomy he regards as a doubtful operation of questionable value. In slight perineal tears, where the muscles are not deeply involved, and there is no special gaping or loss of tissue, he believes that there is no necessity for sutures. Severe or complete laceration should always be sutured immediately, or within a few hours. He believes that version, when indicated, should always be attempted by the external manipulation. Transverse presentations are an absolute indication for external version. It is also indicated in pelvic deformity and in placenta previa, and contra-indicated, as a rule, during labor.

McGillicuddy refers to the value of pelvic version, which has seldom been performed manually. Occurring spontaneously it is comparatively frequent, as Velpeau has collected 137 cases. It may be performed by external manipulation, but is preferably accomplished by a combined method. The operator should introduce his fingers in the child's groin, or over the crest of the ilium, and gradually draw the breech down into the pelvic basin. The operation of extraction can then be easily performed. If the child is large and the delivery promises to be difficult, forceps may be applied to the breech, or manual extraction employed. He recommends the selection of pelvic version, rather than podalic, in cases of transverse presentation, for the following reasons:

(1) It is a much simpler operation.

(2) It necessitates the introduction of the fingers only into the uterus, while

podalic version requires the introduction of the hand, and often of most of the arm.

(3) The child need only be moved sufficiently to draw down the breech, while in most cases of podalic version the child must be made to rotate around the whole cavity of the uterus.

(4) There is less risk of rupturing the uterus.

(5) There is much less shock.

(6) The mortality to the mother and child is less.

GYNECOLOGY.

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D., AND CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D., AND H. D. BEYEA, M.D.

The Relation of Gonorrheal Infection to Disease of the Pelvic Organs.

Bumm (*Münchener medicinische Wochenschrift*, 1891, Nos. 50 and 51) states that he made careful investigation of fifty-five cases of gonorrheal infection with the following results: Fifty cases had gonorrheal urethritis, forty-one had gonorrheal cervicitis, eight had infection of the endometrium in the greater portion of the canal and two had infected tubes. Thus, it is seen that infection does not readily reach the tubes and peritoneal cavity from the fact that the progress of the gonococci is arrested by the secretions in and about the external and internal orifices of the uterus, and even after they enter the peritoneum they thrive poorly upon serous surfaces and usually take the septic form of disease.

A Modified Saddle-form Amputation of the Cervix Uteri.

Borysowicz (*Archiv für Gynækologie*, 1893) has devised an operation for remodeling the hypertrophied cervix, particularly applicable to those cases in which the hypertrophic action is marked in the lateral as well as in the longitudinal direction. The operation consists in the removal of a wedge-shaped piece of tissue from each lateral wall of the cervix and the amputation of the stump in such a manner that the cervix assumes a saddle-like appearance. The lateral incisions are closed with chromicized catgut, taking a deep hold of the tissue and thus readily approximating the surfaces, as the piece removed is wedge-shaped. The portion of the cervix which rubs on the floor of the vagina is protected by flaps of the cervix left after removing the lateral pyramids and trimming the cervix after the saddle-form design. This operation is considered superior to that practised by Hegar, of circular amputation, which leaves an extensive raw surface which requires several months to skin over, even if sutures are well placed in an attempt to approximate the skin of endometrium. The operation restores the conical shape of the cervix and diminishes the lateral as well as the longitudinal dimensions of the cervix.

The Erect Posture for Gynecological Examination.

Wm. B. Dewees (*Medical and Surgical Reporter*, December 2, 1893) urges the importance of examining women in the erect posture, particularly when it is desired to accurately determine the nature and extent of displacements of the uterus or its appendages, as these conditions are apt to be more troublesome to the woman while on her feet, and are not so marked when she assumes the recumbent posture; and, therefore, if the examination is made with the patient in any other than the erect position, a true estimate of the defect cannot be obtained. Also, a pessary which may appear to support the parti-wall while the patient is in the recumbent posture, may be found to be of no value when the erect posture is assumed. Other conditions for which this method of examination is advised are: Vesical and rectal disorders, lack of perineal and vaginal support, ovarian and tubal diseases, abdominal and pelvic tumors, differentiation between abdominal tumors and pregnancy.

Lipoma of the Mesentery.

Belkowsky (*Rev. Méd. de la Suisse Rom.*, No. 7, 1893) reports a case of lipoma of the mesentery with the following history: A woman, 46 years of age, previously healthy, since two and a half years has observed a tumor in the right side of the abdomen, growing slowly, painless, and, since a year, causing bladder symptoms. Through the right vaginal vault a tumor the size of a fetal head can be felt, movable, quite hard and smooth. Also, in the right iliac fossa is a tumor reaching as high as the umbilicus in the median line. Upon the left side is an egg-shaped growth, which extends from the iliac fossa to the ribs, and is movable, painless and apparently not attached to the uterus. A diagnosis of myoma of the uterus was made. The operation showed both right-sided tumors, after cutting through the mesentery, to be without a pedicle and easily removable. The tumor on the left side was capsulated and extensively adherent to the sigmoid flexure of the colon. The first tumor was a myoma and the others lipoma. Belkowsky believes the lipomatous tumors grew from epiploica appendages. Terrilon, in a recent paper on this subject, found that only fourteen cases of lipoma of the mesentery had been reported.

A New Operation for Vesico-vaginal Fistula.

Trendelenburg (*Deutsche medicinische Wochenschrift*, No. 40, 1893) describes a method of operation he has improvised for those cases of vesico-vaginal fistula in which the usual operation is impossible because of the relation of the cervix to the fistula. The patient is placed in the Trendelenburg position, and a lateral incision made above the symphysis pubis, severing the recti muscles and opening the pre-vesical space. The bladder is incised transversely, and provisionally sutured to the skin wound. He then freshens the edges of the fistula and closes it with catgut sutures. The bladder wound is closed with catgut sutures, leaving a small opening through which a drainage tube, attached to a long rubber tube, is introduced. The muscles are united to the symphysis by means of wire sutures and the wound packed with gauze. Drainage is continued about fourteen days, or until the fistula is completely healed, the patient lying on her side, preferably upon a water-bag. Because of the danger of hernia following this operation, Trendelenburg advises his patients to wear an abdominal supporter.

The Treatment of Ovaritis.

M. Winternitz (*Medical Press and Circular*) considers absolute rest in bed of prime importance. The abdomen is to be rubbed daily with an ointment composed of equal parts of ichthyol and lanoline. Copious injections, per vaginam, of warm salt water are given daily, and the cervix uteri is scarified morning and evening. For the correction of constipation which so often prevails among these patients, he gives the following mixture:

℞ Sodii sulphat. . . . . ℥iv.
Sulphur. . . . . ℥i.
Sacchari . . . . . ℥v.
Ess. menth. pip. . . . . q. s.
M. Sig.—f℥i. in water at bedtime.

The Present Status of the Treatment of Uterine Fibroids.

X. O. Werder (*Annals of Gynæcology and Pædiatry*, November, 1893) reviews the various forms of treatment which have been applied to the treatment of these conditions, and concludes that electricity can not in any sense be regarded as a curative agent, but that in certain selected cases its administration is very beneficial. Galvanic puncture is regarded as a most dangerous procedure—probably more dangerous than hysterectomy when done by skilled hands, and its results are uncertain and are not to be compared with those from hysterectomy or some other operative measures. The relative merits of various operations are considered, and the author concludes that while he would prefer total abdominal extirpation of the uterus in strong patients, he believes that the less vigorous ones would have a better chance for recovery with the extra-peritoneal treatment of the stump.

The Treatment of Vesico-vaginal Fistula.

Augustus P. Clarke read a paper upon the above subject at the recent meeting of the American Medical Association. After considering the pathology of the condition and referring to different methods of treatment he says: After splitting up the septum round the margin of the fistula, the deeper or vesical portions of the tissue should be brought together by means of a medium-sized tendon suture. This should be made after the manner of the cordwainers' stitch. After the layer of sutures has been taken through the vaginal or external tissue of the bladder, the first line of sutures will become entirely concealed.

The sutures employed for the vaginal wall should be somewhat smaller than those for the vesical layer, and should be executed by introducing the needle first into one lip of the wound some distance from within and by pressing outward close to the edges of the co-apted parts. After the stitches have become secured, the tissues through which they pass will superimpose and will protect them from the action of the fluids of the vaginal wall. By means of tampons of cotton or iodoform gauze to the vulvo-vaginal introitus the tissues can be kept aseptic. Catheterization of the bladder at regular intervals will prevent any undue strain on the structures of the bladder, and will help produce a speedy and permanent cure. The author has found that aseptic animal sutures are the best for this kind of work, and he prefers kangaroo tendons, prepared after the formula of Lister. Aseptic catgut sutures are also very satisfactory in operations for vesico-vaginal fistula.

An Instrument for Tamponing the Uterus with Gauze.

Asch (*Centralblatt für Gynäkologie*, No. 42, 1893) describes an instrument he has used in many hundred cases for tamponing the uterine cavity with gauze. It is a round, smooth, slightly curved metal rod, with a notch in its end. The notch is comparatively shallow, running in the long axis of the rod, and transversely across the end. The end of the strip of gauze is caught in the notch and carried to the fundus uteri. The instrument is withdrawn as far as the internal os, and again catching the gauze the procedure is repeated. Thus the uterine cavity is completely tamponed. For tamponing after curetting in abortion cases, and in post-partum hemorrhage, the rod should be from 2.5 to 3.5 millimetres in diameter, and in cases of endometritis in the virgin uterus from 1 to 1.5 millimetres.

A Caution Concerning the Employment of Trendelenburg's Posture in Celiotomy.

Henry C. Coe (*New York Polyclinic*, September, 1893) calls attention to a danger which may arise after operation—that of secondary hemorrhage—which may be determined by keeping a patient in this posture. If the hips are elevated for an hour or longer, there is naturally a lessening of the blood supply of the pelvis, but after the dorsal position is assumed there is a corresponding increase in the venous return, which gives rise to a certain amount of oozing. This quantity of blood is generally insignificant, but may reach dangerous proportions, as was illustrated in two cases under the author's care and in three others upon which he operated for other surgeons. Of these five cases which were reopened for secondary hemorrhage only one was successful. The first case described by the author was one of ovarian cystoma adherent to the pelvic floor and to the uterus. After the removal of the tumor and checking of the bleeding, a gauze drain was introduced with end protruding from the abdominal incision. A short time after operation the patient's bed was elevated at the foot about eight inches to prevent cerebral anemia. The gauze strips were examined and did not indicate any bleeding, and so the abdomen was not reopened promptly to search for the seat of hemorrhage. Later, the symptoms pointing to hemorrhage, despite the absence of its indication on the gauze strips, the belly was reopened and the pelvis was found filled with clotted blood, and several large clots were found among the intestines just beneath the diaphragm.

No ligatures had slipped and the bleeding was due to venous return after the patient had assumed the dorsal position. Had she been kept in this posture after the operation the gauze drain should have indicated the occurrence of bleeding, but the elevation of the foot of the bed prevented this. The author advises, in general, the use of a tube as safer when hemorrhage is feared. The second case was one of hysterectomy, from which the same lessons were learned. Venous return caused oozing after the patient had been placed on her back in bed. The foot of the bed was slanted in this case and the bleeding was concealed.

As the elevation of the pelvis defeats the object for which drainage is employed, the practice of elevating the foot of the bed within two or three hours after celiotomy is to be condemned, since in every case a certain amount of fluid gravitates upward among the intestines instead of remaining in the pelvis to become absorbed.

PATHOLOGY.

UNDER THE CHARGE OF

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ASSISTED BY

JOSEPH McFARLAND, M.D.

A Bacillus in the Blood of Measles Patients.

Canon and Pielicki (*Berliner klin. Wochenschrift*, xxix, p. 577) found a bacillus in the blood of fourteen investigated cases of measles.

The specimens were stained in the following solution: Concentrated watery solution of methyl-blue, 40.0; ¼ per cent. solution of eosin in 70 per cent. alcohol, 20.0; distilled water, 40.0. The cover-glasses prepared with a thin layer of blood are treated for 5–10 minutes with absolute alcohol, then stained in the thermostat for 6–20 hours. Sometimes good pictures can be obtained in 2–3 hours. The bacilli are all stained blue and appear paler in the centre than at the ends. The length of the bacilli is rather less than the diameter of a red corpuscle, and are slightly curved. They generally do not appear in the blood until the sixth day. They do not stain by Gram's method. Most attempts to cultivate the bacillus have failed. Bouillon seems to yield the best results.

Pure Cultures of Protozoa.

Ogata (*Centralbl. f. Bakt. u. Parasitenk.*, Vol. xiv, No. 6, August 7, 1893) offers the following method of securing pure cultures of certain forms of protozoa:

A glass capillary tube with an external diameter of 0.4–0.6 millimetres and a lumen of 0.3–0.5 millimetres, about 10–20 centimetres long, is dipped in a vertical or oblique position in sterile bouillon and allowed to fill itself until only 1–2 centimetre's space remains. It is now removed and dipped in similar manner in the solution containing the protozoa and completely filled. In the process of filling one must be very careful not to allow an air bubble to enter between the different fluids.

The ends of the tube are now closed in a flame. Naked eye inspection will allow one to determine exactly where the nutrient media ends and the water or other fluid begins. When examined beneath the lens it will be observed that the protozoa and motile bacteria are entering the nutrient media from the foul water. In a few moments the protozoa, whose movements are much more rapid than the bacteria, will be found in the opposite end of the tube from that they originally occupied, no bacteria having yet arrived there. If one waits until six or a dozen protozoa are seen in this part of the tube, then, after marking with a diamond or file, breaks it off and seals it, he has a pure culture of protozoa which may continue to live for a month or more.

For the further cultivation of these organisms a culture fluid consisting of

500 cubic centimetres of ordinary meat juice,
12.5 g. glucose,
25 algæ mixture, called "Noir" in Japanese,

was recommended. The mixture is boiled, neutralized, filtered, dispensed in test-tubes and sterilized. The author has also succeeded in cultivating *Polytoma uvella* on solid gelatine, the colonies appearing as white points and not liquefying the gelatine.

A Non-albuminous Culture Medium for Pathogenic Bacteria.

Uschinsky (*Centralbl. für Bakt. u. Parasitenk.*, Vol. xiv, No. 10, p. 316) recommends some non-albuminous culture media in which he succeeded in growing pathogenic bacteria possessed of their poisonous properties, which could be secured by filtration through the Chamberland filter. The composition of these culture media is as follows:

Water	1000	Water	1000
Glycerine	40–50	Glycerine	30–40
Sodium chloride	5–7	Calcium chloride	0.1
Calcium chloride	0.1	Sodium chloride	5–7
Magnesium sulphate	0.2	Magnesium sulphate	0.2–0.4
Di-potassic phosphate	1.0	Di-potassic phosphate	2.–2.5
Ammonium lactate	10.0	Ammonium lactate	6–7
		Sodium asparaginate	3.4

The Examination of Street Dust for Tubercle Bacilli.

Marpmann (*Centralbl. f. Bakt. u. Parasitenk.*, August 25, 1893, Vol. xiv, No. 8, p. 229) observed that in old sputum the tubercle bacilli no longer presented their characteristic shape and appearance, but presented the appearance described as an "involution form." Further than this, the bacillary form sometimes entirely disappeared, the bacilli appearing only as granules, which stained by the characteristic methods. Marpmann conceived that tubercle bacilli might be present in the atmosphere in this granular form, and by carefully investigating the dust of various streets discovered that these granules were present sometimes in considerable numbers.

The method employed was as follows: The dust was collected in the morning and allowed to digest in water at 40° C. for about an hour, filtered through a woolen cloth, and the filtrate, of which there should be fifty cubic centimetres, mixed with about ten drops of ammonia carbonate solution. After some time a precipitate of ferrous oxide and earthy carbonates is found. The precipitate is allowed to collect in a pointed glass, or is separated by a centrifugal machine and stained with carbol-fuchsin in the ordinary way. When old sputum is examined by this method, the number of granules is large. In dust each cover-glass contains a very few, say five to ten.

Satisfied that these bodies represented the tubercle bacilli, Marpmann determined to test their vitality, and making use of the discovery made by Vissmann that the tubercle bacilli could resist prolonged exposure to steam, succeeded in obtaining from street dust pure cultures of the tubercle bacillus.

The dust was first subjected to a careful investigation for the presence of the granules mentioned above. If they were found, the following method of cultivation was attempted. The dust was digested in water, filtered, precipitated, etc., as above, and then inoculated into a culture medium, after which it was boiled for an hour. From this boiled mixture tubes of bouillon and agar were inoculated, and, after being filled with an atmosphere of pure oxygen, were hermetically sealed and stood in the incubator for four weeks. At the end of this time examination showed the bouillon sterile and a growth of tubercle bacilli on the agar.

These discoveries are of great importance to students of hygiene, and show what disastrous consequences the expectoration of tubercular sputum upon sidewalks may cause by dissemination of their contained micro-organisms.

The Parasitism of Carcinoma, as also the Sarco-, Myxo- and Micro-sporidia of Muscle Tissue.

L. Pfeiffer (*Centralb. f. Bakt. u. Parasitenk.*, Vol. xiv, Nos. 4 and 5, 1893), in an article illustrated by numerous photomicrographs, describes the various parasitic diseases allied to carcinoma as follows:

Three tumors due to sporozoa present, at one stage of their development, the same type of cell as is found in carcinoma.

The sporozoa belong to the protozoa, and are related to the infusoria and the amebæ. They are widely distributed, scarcely any animal being free from them. The most important forms are *coccidia*, *sarcosporidia*, *amebasporidia* and *hemosporidia*. The gregarinæ belonging to this class are, as a rule, not pathogenic.

The *coccidia* have nothing to do with cancer, for in this tumor the "lasting cyst" (dauercysten) form, which is so constantly seen in the rabbit, is not assumed; nor does the coccidium present the polymorphic adaptability presented by the carcinoma parasite.

The author believes the Meischer's tubes found in the muscle of the hog, and representing the *sarcosporidia*, to be produced by infection from a parasite residing in the kidney of a form of lelix. The contents of a Meischer's tube consists of innumerable sickle-shaped bodies, with a large well-stained central nucleus. Examined in filtered human saliva, the sickle-shaped body changes into an ameboid cell, which closely resembles an epithelial cell. If a tube bursts *in situ*, a tumor is likely to form, which bears an appearance almost identical with cancer.

Inoculation of rabbits leads to severe hemorrhagic inflammation. The hypodermatic injection of a glycerine extract of a large quantity of the sickles induces toxic symptoms—fever, collapse, convulsions, death. In this connection it is to be remembered that in malaria the chill occurs at the same time as the escape of the young ameba from the red blood corpuscles.

Microsporidia are found in the calf and belly muscles of the marsh tortoise. The rupture of one of the cysts formed by these organisms does not set free a large number of embryos, but a single ameba. The microsporidia are also the cause of the dreaded silkworm disease *pebrine*.

The *myxosporidia* have a complicated structure. Primarily, the spore consists of a bivalve envelope in one end of which are found two "polar capsules," which stain readily. With proper stains a filamentous process can be seen springing from these polar capsules. Furthermore, the spore contains a protoplasm not easily stained, which forms a mass, which passes out as a free ameba when the spore bursts.

The proliferation of the sporidia is accompanied by budding of the muscles in the invaded area, and a disappearance of newly formed muscle cells. At one period of the process the parasites have the appearance of epithelial cells. In the hog the tumors produced by the parasites do not attain a large size, but in the horse may become as large as the fist. The tumor grows at the expense of the newly-formed muscle tissue, which the author thinks is produced by a peculiar irritation set up by the parasite. The parasite consumes the new muscle cells, and takes their place in the tissues.

The fact that there are undoubted parasitic tumors in which the epithelial cell is a parasite, makes it improper to regard an accumulation of epithelial cells in an abnormal situation as a criterion of cancer.

The cancer parasite is probably allied to the sporozoa, and probably most akin to the group of *amebasporidia* established by Schneider.

MISCELLANEOUS.

SPECIAL LECTURES IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY.

It is gratifying to announce that a special feature of the medical course during the present session will be a series of lectures by such eminent physicians as Dr. J. M. Da Costa, Dr. William Goodell and Dr. Isaac Ott.

Dr. Ott delivered a lecture on "Temperature and its Regulation," in Medical Hall, on January 10. It will be published in a future number of the Magazine. The dates and subjects of the future lectures will be announced later.

CORRESPONDENCE.

PAROTITIS FOLLOWING PNEUMONIA.

In view of the statement by Professor Osler that parotitis is a rare complication in pneumonia, the following case may be worthy of record: J. H., white, farmer, aged 45, of a delicate constitution and very deaf, contracted la grippe in March, 1893. Carelessness and exposure brought on an attack of pneumonia of the left lung. I first saw him on March 18, and noted the following: Temperature, 103°; pulse, 100; consolidation of lower lobe of left lung; respiration, 35; skin "leaky." He grew no worse, and by the 25th convalescence seemed fairly established.

On the 26th he complained of severe pain beneath the right ear, and there also appeared to be some dulness of intellect, though the symptom was indefinite, owing to his deafness. By the following day swelling of the parotid gland was very visible, and it slowly augmented until it filled up completely the submaxillary space and extended well up into the temple. The ear became involved and discharged a greenish pus. Dulness of intellect increased, delirium supervened and the patient died on April 4 with pronounced symptoms of meningitis and without any suppuration of the gland having been established.

Treatment.—Supporting measures with local use of cold at first and subsequently warm fomentations.

A. J. Hamilton, M.D.

Cassville, Pa.

BOOK NOTICES.

A System of Genito-urinary Diseases, Syphilology and Dermatology. By various authors. Edited by Prince A. Morrow, A.M., M.D., Clinical Professor of Genito-urinary Diseases in the University of the City of New York, etc. In three volumes. Volume II, Syphilology. New York: D. Appleton & Co., 1893.

The first volume of this valuable work was noticed on page 882 of Volume V of this magazine. The present volume is devoted to "Syphilis and Chancroid." The consideration of syphilis occupies 850 pages. The subject has been carefully divided between twenty-two authors of prominence, and the whole edited by Dr. Morrow. To discuss even briefly the various chapters would take us quite beyond the allotted space, and the excellence of each individual contribution is such that we may not select a few for notice without seeming unjust to those not mentioned.

We note that while the bacillary nature of syphilis is not considered as proved, it is accepted as most probable. More than 100 pages are devoted to treatment. The importance of the subject fully justifies the space allotted, and this feature will be particularly appreciated by the general practitioner.

The last fifty pages of the book are devoted to chancroid and its complications. These chapters, like those which precede, leave nothing to be desired.

As a complete and systematic treatise on syphilis and chancroid this book is without a rival. It is in every sense modern and eminently practical.

An especial feature of this work is the large number of excellently-executed illustrations. The work of the publishers has been most creditably performed.

A Practical Treatise on Diseases of the Skin. For the Use of Students and Practitioners. By J. Nevins Hyde, A.M., M.D., Professor of Dermatology and Venereal Diseases in Rush Medical College, Chicago. Third Edition. Philadelphia: Lea Brothers, 1893.

The favorable reception of the previous editions of this work is an assurance that in its present enlarged and extended form it will maintain its past enviable position among standard works on medicine.

In the present edition thirty-five new diseases are considered. The chapter on tuberculosis has been wholly rewritten in accordance with the modern view of this subject.

A very interesting chapter to the physician is that on "General Therapeutics," in which the nature and uses of the various drugs used

in dermatology are briefly described. Under "Dermatitis Medicamentosa" twenty-nine distinct drugs are enumerated which produce cutaneous eruptions with sufficient frequency to be considered worthy of notice. The author well reasons that this list may be in the future greatly extended.

It is exceedingly difficult properly to proportion the space allotted to individual subjects. Again, different authors place very different valuations on any given subject. Perhaps in the book under review this fault has been largely overcome. It occurs to the writer, however, that far too little attention is devoted to dermatitis herpetiformis.

The presentation of the subject is clear and direct, and the treatment is concisely given, so that the reader is not left in doubt or to select at random one of very many remedies said to have been recommended at various times and by various authors.

The student and practitioner, for whom this work is intended, will find it a safe and useful guide in dermatology. The original plates and wood-cuts have been added to in the present edition.

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UNIVERSITY OF PENNSYLVANIA PRESS,

716 Filbert Street, Philadelphia, Pa.

UNIVERSITY
MEDICAL MAGAZINE

MARCH, 1894.

A CONTRIBUTION TO THE ANATOMY OF THE HUMAN RETINA, WITH A SPECIAL CONSIDERATION OF THE TERMINAL LOOPS OF THE RODS AND CONES.

By W. F. Norris, M.D.,
Professor of Ophthalmology, University of Pennsylvania,
AND
James Wallace, M.D.,
Assistant Ophthalmic Surgeon, University Hospital.

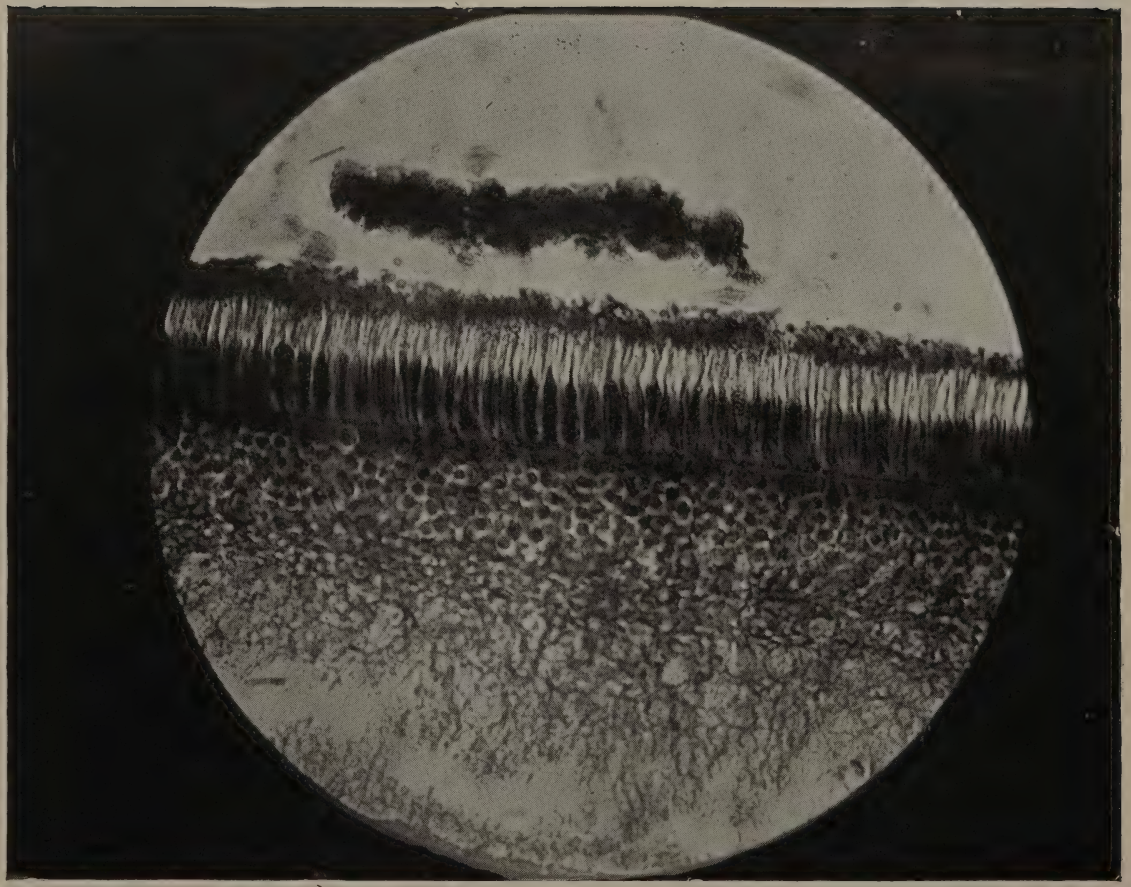
The anatomy of the rods and cones of the human retina is confessedly a difficult field of research. These delicate organs rapidly undergo change after death, and during life they are often altered by disease; moreover, they are easily swollen or shrunken in the process of preparation by the menstrua and reagents employed. An opportunity to study them to advantage by modern methods with immersion lenses is thus very rarely obtained, and as a consequence anatomists have often been obliged to resort to the lower animals for much of the material of their investigations. The structures that have been figured in the retina have usually been observed in the eyes of fishes, frogs, crabs, birds, and some mammals. These animals can be easily killed and the retina at once fixed; but we can only remove diseased human eyes from the living body, and even after death a decent interval of time must be allowed to elapse before the eyes can be examined. The nearest approach to a normal condition of the retina would thus seem to be afforded by such a wound of the eye as justified its immediate enucleation.

The eye which furnished the specimens from which our illustrations have been made was wounded by a scale of iron which passed through the cornea, lens, and vitreous, and was found embedded in the sclerotic. The eyeball was enucleated and immediately placed in Müller's fluid; subsequently stained with carmine and embedded in paraffin.

Of the many careful and laborious researches into the anatomy

of the retina, those of Henle, Heinrich Müller, Max Schultze, and Hannover stand out prominently. According to Schultze, "Heinrich Müller discovered in the retina radial fibres passing through its various layers, and the accurate deductions which Kölliker and Müller associated with this discovery, procured a ready and general acceptance of the opinion that the rods and cones are the ultimate terminations of the fibres of the optic nerve, and are therefore the percipient elements of the retina. In fact, the anatomical relations of the retina allow no other explanation of the mechanism of the visual act. On the surface which receives a distinct image of outside objects there is required a definite number of these sensitive points. The greater the number of these sensitive points there is in a given space, the more acute will be the perception of form. What arrangement could be more suited to this object than that of the layer of rods and cones whose ends constitute a mosaic of elements, each forming an independently sensitive area, small enough to explain the acuity of vision as it is observed in human beings? We have sufficient grounds for the assumption that every sensation originates primarily in a nerve-end. That such nerve-ends do not exist in the fibre layer is beyond doubt. The layer of ganglion-cells offers no ground for the theory of the nerve-endings being contained there. They can only be regarded as a medium for the transmission of the nerve-fibres. The discovery by Heinrich Müller of the radiating fibres extending to the cones and on to them showed the route by which the impressions were conveyed from the cones to the optic nerve. Purkinje's experiments demonstrating that the eye could perceive the shadows of its own retinal blood-vessels, proved that only the outer layers of the retina could be the percipient ones, since the blood-vessels reach to the outer granular layer, and there only remain the outer nuclear layer and the layer of rods and cones. Müller demonstrated the connection between the outer nuclear layer and the layer of rods and cones. The rods and cones, or both together, must, therefore, be the percipient elements."[1] From Kölliker we quote the following: "Hannover, the first who has systematically discussed the cones of the retina, did not extend his investigations to human beings, and only describes the cones in the mammalia as long round bodies one-half the length of the rods, with two very short round points on their outer end. Best of all have Pacini and Henle treated the subject. Pacini describes them as conical or pear-shaped bodies .0156 mm. in length and .0093 mm. in breadth, which sometimes are single and sometimes are connected to another cone (twin cones), or appear to be connected with a rod. He further asserts that the outer end of the rod bends on itself and becomes connected with the end of a cone."[2] Hannover's most recent work (1876),

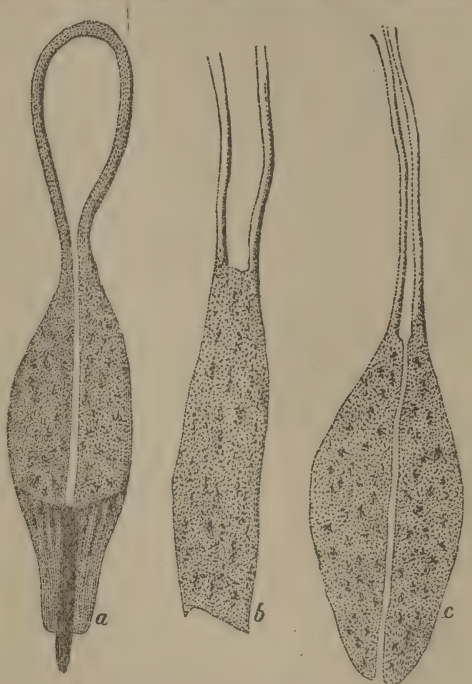
[1] Schultze: Anatomie und Physiologie der Retina, Bonn, 1866, pp. 2, 3.
[2] Kölliker in H. Müller's Gesammelte und Hinterlassene Schriften, Leipzig, 872.



Human Retina, Layer of Cones, × 600 Diameters.

HUMAN RETINA, LAYER OF CONES, × 900 DIAMETERS.

which is some twelve years later, contains a diagram of these twin cones, from which we have taken the accompanying illustration. Notwithstanding the pains he has taken in delineating these structures, he denies the opinion that they are the percipient elements of the retina. Still later, in 1887, Borysiekiewicz has published a monograph on the structure of the retina as based upon a study of the eyes of lions, tigers, and others of the cat tribe, as well as on the human organ. The illustrations are made with great fidelity to detail, but as they are drawings they are open to criticism, although they agree with the photo-micrographs which are reproduced in this paper. He ums up his treatise by denying that the rods and cones are the end organs of the optic nerve-fibres, and places the percipient elements in the intermediate layers. A brief summary of some of the most important physical conditions, which form the basis of our visual perceptions, will materially assist us in understanding the apparatus which is destined to attain this end, and the *modus operandi* of the mechanism which awakens in the brain the recognition of light, form, and color. The simple sensation of light may be awakened by any force acting on the fibres of the optic nerve either at their peripheral endings, or at any point in their course. Such irritation may be purely mechanical, as pressure by the finger on the eyeball, or may be excited by light-waves. The recognition of form requires a certain admixture of light and shadow, or alternately active and passive elements in the retina. The dimensions of these elements on the sensory surface must correspond to the limitations of our perception of form. These elements must also possess within a certain area the same dimensions and a symmetrical arrangement. The size of these elements can be easily calculated. Snellen's standard of visual acuity is based on the perception of lines separated from each other by an angular distance of one minute. The distance of the nodal point of the eye from the retina being 15 mm. (nearly), the



TWIN CONES (from Hanover.)

size of such space would be .00435 mm. If we take the experiments of Volkman and others into consideration and reduce the limit to twenty seconds, we obtain a value for the sensitive elements of .00145 mm; we have ourselves obtained such results. The dimensions of the percipient elements would thus be reduced to .00145 mm. This is only one-third of the size that Schultze has given to them. The photo-micrographs show that what is seen as a single cone under a lower power is resolved by a higher power into three distinct elements. It is still necessary to consider what arrangement is provided for restraining the sensory impulse acquired by one cone from communicating itself to the neighboring cone. From the layer of pigment-cells may be seen masses of spongy pigmented tissue penetrating between the separate elements, insulating them effectively from each other and neutralizing all light-waves which have not already spent their energy on the cones.

As Müller and Schultze have already pointed out, no layer of the retina possesses the requisite conditions for these functions excepting the layer of rods and cones. All the other layers have multiple elements situated behind each other; in this layer only is there a single element extending entirely through it. Their regularity of size on the limiting membrane, and their uniform shape, mark them as pre-eminently fitted to the perception of light-waves. Schultze and Müller have determined their measurement to be .0034 to .0036 mm., which would give as the limit of perception an angle of 48″. Homogeneous immersion lenses resolve these cones into two or more bodies, as may be easily seen on the left hand portion of the larger illustration. This would correspond at least to an angle of 24″ for limit of perception, which agrees with the result of daily experience. The theory of Henle, Müller, Kölliker, and Pacini, that the rods and cones are the end organs of the fibres of the optic nerve, has been denied by Brücke, Hannover, Borysiekiewicz, and others. Brücke's theory is that the bases of the cones, acting with the pigment-epithelium as concave mirrors, reflect the light back again to the inner layers of the retina, which are thus doubly impressed. Although the twin cones have been long known in the retina of frogs and fishes, it seems never to have awakened the idea of the looped termination being a recurrent nerve-fibre. Hannover, who delineates them so clearly, does not allow them any value as percipient elements. If the sensory impression is made on the bases of the cones by the light which passes through the retina from within outward, its conveyance to the central organ requires that the direction of the force shall be completely reversed. In some way, therefore, we are to find a mechanism which will turn the sensory organs on themselves. Heinrich Müller states that "at times fine fibres sit on the pointed ends of the rods, and are not directed towards the choroid, but are turned inward." Pacini states that the outer end of a rod bends on itself like

a hook, and connects with the end of a cone. In spite of such fidelity in description, the function of these organs still remained obscure.

Light is only conceivable to us as molecular motion. Its perception is only to be explained by the molecular vibration being communicated to the terminal filaments of the nerve-fibres. There is thus a similarity to the other sensations. Our illustrations show that the cones terminate in a looped extremity which passes down over the body of the cone, and, after some convolutions in the position of the so-called external limiting membrane, winds along among the elements of the outer nuclear layer.

Our preparations show a marked difference in the length of the cones, some of them forming their loops much nearer to the external limiting membrane than do others. This can be observed in places where there is no question of mistake by reason of the oblique direction of the section, but where several adjacent cones can be followed throughout their entire length.

We have also seen the terminal loops of the cones distinctly in osmic-acid preparations, but do not present pictures of them because the peculiar color assumed by such retinæ renders it difficult to give a good photographic reproduction of them.

A fine longitudinal striation has been observed by many investigators on the bodies of the cones, and the necks of the cones have been seen in the eyes of fishes to possess a series of transverse markings, which presumably was due to their structure being composed of disk-like bodies. In our original photo-micrographs these delicate lines are plainly visible, but reducing the size of the picture has caused them to fade slightly. The longitudinal markings can be traced from nearly the bases of the cones, and are seen to undergo a twisting which on the necks of the cones produces the transverse striations which have previously been described in the eyes of fishes. As the neck recurves and passes down over the body of the cone as a fibre, we can see the portion of the cone over which it passes transversely striated, in some places we thus have transverse and longitudinal markings side by side. The transverse striations do not end in the layer of cones but are plainly visible among the fibres of the outer nuclear layer. They may be followed into the optic nerve by this characteristic spiral wrapping. In the internal granular layer, the investment of the fibres with this covering seems to be reinforced, while other fibres passing at right angles form an arrangement resembling wicker-work. In the layer of optic nerve-fibres a similar arrangement may be observed.

The great difficulty in seeing the looped extremities of the cones arises from the fact that they are buried in the pigment, and when the pigment has been torn off, the ends of the organs are usually mutilated. They are extremely delicate, and even very light pressure of the immer-

sion lens against the cover-glass will cause their complete destruction. It is not possible to follow their outlines through the pigment. We may regard our specimen as very fortunate in the separation of the pigment-epithelium from the extremities of the cones without doing any violence to the structures.

The photo-micrographs were made by artificial light on an 8 x 10 plate. The objective was Reichert's $\frac{1}{15}$ oil immersion. To appreciate minute structure, an extremely narrow pencil of light is necessary. This can be obtained with a mirror at a very oblique angle or, as one of us (Wallace) has found, we can obtain the same result by using a .5 mm. opening in front of our source of light. All the lenses, eye-piece, objective, and condenser should be achromatic. The condenser is varied to suit the amplification, greater amplification requiring lesser area of illumination. It is thus only necessary for 1000 diameters to have the point of light .25 mm. in size in order to cover an 8 x 10 plate. The microscope is used in a horizontal position. A Welsbach's gas-burner, with a sheet-iron chimney, perforated for the diaphragm, furnishes a very satisfactory illumination. The length of exposure for the larger picture was ten hours. This was partly due to the retarding influence of the carmine stain. It will be found best for those who care to use artificial light and homogeneous immersion lenses to let the oil remain on the objective and slide a day or two before photographing and also to let the light burn for an hour before trusting to the focus and centring remaining unchanged during a lengthened exposure.

WHAT SHALL WE DO FOR HIP-JOINT DISEASE?

By A. M. Phelps, M.D.,

New York,

Professor of Orthopedic Surgery in the University of New York, the New York Post-Graduate School and Hospital; Professor of Surgery in the University of Vermont; President of the American Orthopedic Association, etc.

It is not a difficult thing to say what should be done in any given case, provided we decide on general and valid principles. Usually the cases which come to clinic at the Post-Graduate and the University Dispensary are managed in the following manner: (1) We aim to overcome the deformity, and (2) we open abscesses; and, when this has been done, the finger is used to carefully explore the joint. If dead bone is found, it is removed; if the head and neck of the bone have

been destroyed, a complete excision is performed. Patients coming to us with a marked degree of angular deformity are placed in bed with the body and well leg fixed in plaster of Paris, and with traction in the line of the deformity, and at right angles to that line, or, in other words, traction in the line of the axis of the neck; and day by day the limb is dropped until it is parallel to its fellow, or the deformity is entirely overcome. After this, suitable splints are adjusted, and the patient allowed to go on crutches and exercise in the open air.

The splints which we use in the care of this class of cases are known as Phelps's lateral traction splints. They are so constructed as to fix the patient exactly as he was fixed in bed, and to apply traction in the same manner; that is, in the line of the axis of the neck.

FIG. 1.

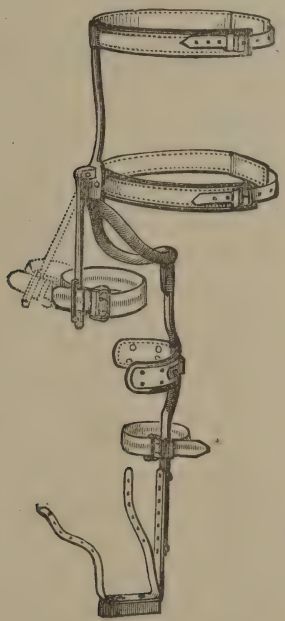


FIG. 2.

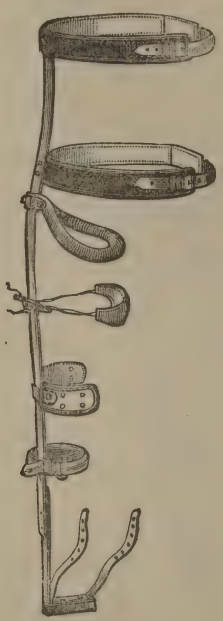


Fig. 1 conveys a correct idea of the splint. The steel ring catching the tuberosity acts as a point for counter-extension. The limb is well buckled down into the splint by means of straps on the foot-piece, which are buckled into adhesive plasters attached to the limb. Lateral traction is made by buckling the limb firmly to the lateral traction-bar *a*. A cheaper splint is illustrated in Figs. 2 and 3, which answers the same purpose, lateral traction being made by lashing the limb firmly to the bar. It is much cheaper than the splint shown in Fig. 1, and is used almost exclusively in our dispensary work.

The patients are now placed upon crutches, and are never allowed

to step upon the splint until they are cured. (See Fig. 4.) This varies in time from one year to three or four. It will be observed that these splints, extending from below the heel to the axilla, prevent the limb from assuming an angle with the body. *This is the reason why none of our cases recover with angular deformity. It will also be seen that, seizing the pelvis, as it does, with the pelvic band and steel ring, it fixes the joint, and this fixation is continued without motion from the commencement of the treatment until the patient is cured. This is the reason*

FIG. 3.

FIG. 4.

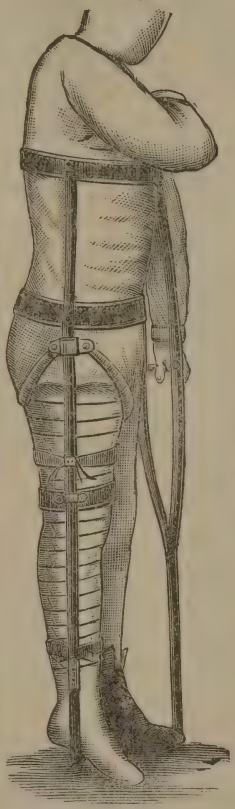
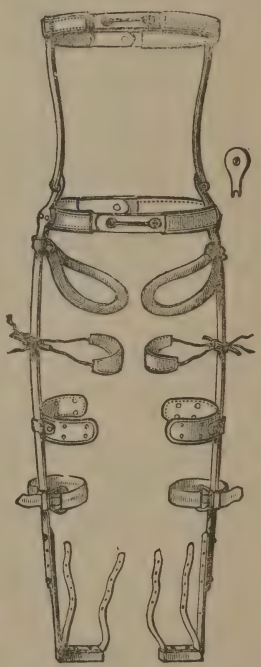


FIG. 5.



why our patients never recover with bony ankylosis. All degrees of limit of motion are seen in these cases,—varying from never less than 10° up to perfect motion. *The reason for this is that, holding the joint at perfect rest, Nature goes on in her effort at cure uninterrupted by the trauma of motion.* The constant stepping on a splint, as is allowed in the splints used by Sayre, Taylor, and others, produces a constant trauma of the joint; new material is thrown out, and, when finally the patient is cured, the cicatricial contraction of this new material produces the limit

of motion, which is seen almost always in cases treated by the long traction splint. *The splint extending below the foot has a decided advantage over Thomas's splint, because that splint stops at the calf of the leg. If the patient gets a slip, he must necessarily step on the foot, and this drives the head of the bone into the socket, producing a trauma; and, then, small children will step on their limb. The splint stopping at the calf does not protect the joint.*

Lateral traction is absolutely necessary to overcome the traction of the glutei muscles and the adductor groups. These muscles act in a line corresponding to the axis of the neck of the bone, and not of the shaft; and to relieve intra-articular pressure, it is necessary that lateral traction should be applied, or traction in the line of the axis of the neck, as is done in the splint illustrated.

Fig. 5 is my double hip-joint splint: it is simply two splints, like those shown in Fig. 2, joined together in the centre.

Now, in the use of these splints, as I have already said, *I never see bony ankylosis; no case recovers with angular deformity; and it is the exception to see a case with less than 10° of motion. That shortening of half an inch*, which is almost always seen *in cases treated by other splints*, which shortening is due to intra-articular pressure, the result of muscular action, *I do not see in my cases. The shortening in my cases is only produced by extensive disease of the bone,—the result of pathological changes, and not of pressure.*

If abscesses develop in these cases, they are immediately operated upon, and certainly no diagnostician can determine exactly the extent and location of the disease in the suppurating joint *without intelligently exploring it with his finger; hence, when these abscesses have been once opened, the finger is introduced.* Very frequently the head of the bone is found separated from the neck, the acetabulum perforated, and masses of diseased bone lying as sequestra in the cavity. These, of course, are removed, or a complete excision performed. The wound is packed and allowed to heal by granulation. Within four weeks after these operations are performed, and frequently much sooner, the patient is allowed to be up and about, on crutches, with this splint. *The fear of opening abscesses, and the exaggerated reports of the unfavorable results from so doing, are all mythological. I would as soon cut open a healthy joint as I would look at one's tonsils, so far as danger to either is concerned. If suppuration is going on within the joint, and there is also an open sinus, it is no longer a joint, but a compound suppurating fracture. It is, in my opinion, extremely bad practice to allow these sinuses to burrow through the tissues*, and find their exit on different parts of the surface of the body. It is just as *bad practice to curette and scrape sinuses with dead bone which cannot be removed at the bottom of them, for, unless you can remove the bone, you only leave an abraded surface, which simply*

facilitates absorption. By early operation on abscesses life is frequently saved, and, inasmuch as cases in which abscesses occur do so much better after the abscesses have been properly treated, I believe that we should incise all abscesses.

It is said that the treatment of these abscesses, *by allowing nature to take care of them, is conservative.* This may be conservative, but, to my mind, *it is extremely unscientific. Conservative surgery is doing the right thing at the wrong time; scientific surgery is doing the right thing at the right time.* To illustrate: A patient, fourteen years of age, came to the clinic from the New York Orthopedic Dispensary. She had been growing rapidly worse, notwithstanding she had been wearing the long-traction splint for a long time. When first seen, she had an abscess; the leg was flexed 45° or more; there was the characteristic deformity of the third stage of hip-joint disease, with one and a half inches shortening. We adopted our almost invariable plan, and operated upon her abscess. On opening into the joint, we found extensive destruction of the bone, and the joint filled with pus, which was burrowing in all directions about the thigh. There were also pieces of bone loose in the acetabulum. These fragments and all disease were removed, and the wound packed daily during the healing process. She has worn my long-traction fixation splint, extending from below the foot to the axilla. This splint was worn for four years, or until about four weeks ago, when the thoracic band was cut off. There is one and one-half inches shortening; in other words, exactly the same as when she came to us. Abduction and flexion have disappeared, *and, although the joint was not moved for four years, she has good motion in it.* The limb can be flexed to 15°, abducted and adducted 8° or 10°, and these last motions are increasing. *Hence, the fallacy of prolonged rest of a joint producing ankylosis, as taught by Sayre and others, should be a thing of the past. Fixation does not cause ankylosis, as they teach. I am sure this patient is cured, and I will tell you why, because, after removing all apparatus, the limit of motion has been steadily increasing.*

It is urged that the patients wearing the lateral traction fixation splint cannot sit down. They sit on chairs as comfortably as with the long-traction or any other hip splint. It is further stated that the lateral traction applied produces intra-articular pressure by pressing upon the adductor group of muscles.

Ridlon[1] offers this criticism, and exhibits diagrams showing pressure made in the "upper third" of the thigh: *Lateral traction is made in the lower third of the thigh below the attachment of the adductor group; hence no pressure is made on that group, and the argument must come to naught, being based on a false assumption.*

[1] International Medical Clinic, 1893.

PREVESICAL INFLAMMATION.

By Edward Martin, A.M., M.D.,

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In August, 1893, there came into my ward at the St. Agnes Hospital a German, 48 years old, who was unable to urinate except by drops, who could not pass the catheter on himself, and who exhibited a somewhat indurated, brawny tumor in the region of the right external inguinal ring, with slight edema of the scrotum of the corresponding side. This patient gave a history of two attacks of gonorrhea some thirty years ago, and suffered from suppurating bubo at the same time. Four years ago, after a period during which urination became progressively more difficult, he suffered from complete retention, and was relieved by catheter and subsequent soundings. Two years later he suffered from a similar attack, and submitted to the operation of internal urethrotomy. This, however, did not give him complete relief. Urination was frequent, often difficult, always dribbling. Attacks of complete retention occurred, for the relief of which catheters of diminishing size were required. Finally, but a few drops of urine could be voluntarily voided at a time, but it dribbled almost constantly.

Some four weeks before he came to my ward, after the reduction of a right inguinal hernia, from which he had suffered for many years, he noticed that a certain amount of swelling persisted in the region of the external ring. This swelling gradually increased, and caused much pain. On examination there was found in the right inguinal region a projecting, hard, non-elastic tumor, about the size of a man's fist. This swelling did not extend along the inguinal canal, but seemed rather to be continued towards the middle line, and downward in the region of the bladder. Its borders were somewhat sharply outlined, but not so distinctly as would be expected in the case of an encapsulated tumor. The bladder was over-distended, there was a stricture five and a half inches from the meatus, through which a filiform bougie could be passed with difficulty. Rectal examination failed to show enlargement of the prostate, and above the upper borders of this gland the distended bladder-wall could be distinctly felt. There was hectic temperature, slight degree of uremia, and weak and irritable pulse. The tongue was brown and dry, and the bowels relaxed.

A vertical incision, one inch in length, was made over the most prominent part of the tumor,—*i.e.*, over the outer portion of Hesselbach's triangle. The incision was carried downward to the outer border of the conjoined tendon without reaching pus. The soft tissues in this region were, however, edematous, and palpation at the bottom of the wound gave an obscure sense of fluctuation. A pair of hemostats

were thrust forcibly downward and inward from the outer border of the conjoined tendon, and more than a pint of thick, yellow pus was evacuated. The finger carried through the opening made by the forceps could feel the anterior wall of the tense bladder, and above the peritoneum separating the abscess from the belly cavity. A large-sized drainage-tube was introduced, and sewed in place.

A filiform bougie was then passed through the stricture, allowed to remain for twenty-four hours, and an attempt made to introduce over this a No. 8 French Gouley catheter. Resistance to justifiable force was so unyielding that further attempts at forced catheterization were relinquished, and external perineal urethrotomy without a guide was performed. This operation, as was the case with the opening of the prevesical abscess, was attended with such marked shock that an opportunity was not given for performing internal urethrotomy on three anterior strictures, the smallest of which admitted a No. 28 sound. A large English permanent catheter was introduced from the meatus to the bladder, and the patient was returned to his bed with a pulse of over 140, which could scarcely be counted at the wrist, and a leaky surface. This in spite of the fact that operation had not lasted fifteen minutes. One-eigth grain of strychnine was given, hypodermically, in divided doses in the course of the next two hours, and within twelve hours reaction was complete. Recovery was uneventful, except for the fact that the permanent catheter had to be removed the following morning on account of severe pain. The bladder was flushed out, night and morning, with 1 : 10,000 solution of nitrate of silver, the prevesical abscess was kept clean with peroxide of hydrogen, and in six weeks the patient returned home, having gained some thirty pounds in weight, entirely healed, able to pass on himself a No. 27 sound with ease, and with an apparently healthy bladder, urinary examination showing no pus.

The point of special interest in this case is the presence of a prevesical abscess coming on without apparent reason, and simulating in some respects inguinal hernia. These prevesical abscesses are more frequent than reported cases would lead us to suspect. In German journals the region in which these abscesses are prone to form is called the space of Retzius, named from the distinguished anatomist, who so clearly pointed out its boundaries.

Thorndike, in his admirable paper upon the subject of prevesical inflammation, thus outlines this space: "It will be remembered that the sheath which covers the recti muscles of the abdomen on their posterior surface does not extend all the way down to the pubes, but ceases at a point between the umbilicus and pubes, and ends in a crescentic border which the French writers call the 'semi-circular fold of Douglas.' This leaves the lower part of the posterior surface of the recti

muscles without a sheath. From this lower crescentic edge of the sheath two thin layers of fascia are continued. The anterior one, which is very thin indeed, covers the lower posterior surface of the recti muscles, left uncovered by their own sheath, and attaches itself to the symphysis. The posterior of the two layers extend down behind the bladder to join the pelvic fascia. These two layers of fascia are merged at the sides into the edge of the aponeurosis of the transversalis and oblique muscles. It is evident that there are two distinct spaces in this region ; first, a submuscular space just behind the lower part of the recti muscles, and shut off from the prevesical space proper by the thin anterior layer of fascia ; and, second, the prevesical space itself, shut in above between the two layers of fascia, and below between the anterior bladder-wall and the symphysis pubis."

Englisch, of Vienna, classes the cases of prevesical inflammation under the head of idiopathic, traumatic, metastatic, and from direct extension. Idiopathic cases are generally considered to be tubercular. The symptoms appear in the form of gastro-intestinal derangements, followed by pain in the prevesical region, by fever, the formation of a tumor, which is usually symmetrical and appears above the symphysis, and when the inflammation extends downward by disturbances of micturition. The tumor simulates a full bladder. Pus-formation is indicated by characteristic constitutional signs. The abscess may rupture into the peritoneal cavity.

The case which I reported would probably be classed under the heading of extension from inflamed adjoining tissues. In this instance the bladder had long been over-distended and subjected to a mild grade of cystitis, and it is possible the exciting cause may have been the clumsy use of an instrument. In any event, the onset was slow, and because of the existence of a hernia and the appearance of a tumor in the hernial region, the true nature of the case was not suspected until the septic process had extended so far that a dangerous degree of exhaustion was induced. According to Thorndike these suppurations commonly form symmetrical tumors, and are prone to point in the middle line. This case is an exception to that rule. Englisch, in his tabulation of thirty-three idiopathic cases, records four deaths, a mortality of 12½ per cent., all from rupture of the abscess into the general peritoneal cavity.

In addition to the instance above recorded, I have seen two other instances of suppuration in the space of Retzius, both, however, as a part of a general pyemic process induced by operation on the urinary organs. In one of these cases there was absolutely no swelling perceptible above the pubis. Pain, great tenderness on pressure, and edema of the abdominal surface in the region of the pubis suggested the presence of pus in this region, post-mortem examination showing the suspicion to be well founded.

In all three of the cases I have seen the local edema was distinctly observable, and constituted a strong reason for suspecting the presence of deep pus.

The lesson to be learned from the statistical study of the cases is that early operation practically reduces the mortality to the vanishing point, since it does away with the principal danger, *i.e.* rupture into the peritoneal cavity. It is evident that the incision for the evacuation of pus should be made in the median line just above the pubis.

ELECTRICITY IN THE TREATMENT OF CHRONIC PROSTATITIS, AND OTHER CONDITIONS UNDERLYING IMPOTENCE IN MEN.[1]

By G. Betton Massey, M.D.,
Philadelphia.

The several forms of electricity have been quite generally accorded an honorable position by many writers on male impotence, yet the value of the remedy has seemed of late but little appreciated by the workers in this department. A survey of the literature of the subject has convinced me that the following causes have mainly contributed to this recent neglect of a most valuable adjunct to the work of the genito-urinary specialist:

First, the new methods of electrical application which have attracted such universal attention in the diseases of women have not been generally applied to men. The age of accuracy in electro-therapeutics appeared only about eight years ago, while nearly all of our literature on genito-urinary electro-therapeutics is much older. No Apostoli has thus far appeared to guide us to the great truths undoubtedly hidden in the possibilities of electric energy scientifically applied to the prostate, seminal vesicles, vas deferens, and testicles,—the analogues of the uterus, tubes, and ovaries. The fault of the older work was its inaccuracy of dosage and uncontrollability,—two faults that are fatal to scientific results, except by accident.

The meter and controller are as essential in this work as in the diseases of women; without them applications of electricity in either class of affections are like using a powerful drug without weighing or measuring it.

A second, and probably a more important reason for lack of advancement in the genito-urinary electro-therapeutics of the male, is the surgical air and infection of the day, which leads the physician to look for stricture rather than glandular, muscular, or nervous disease.

[1] Read before the Phila. County Med. Soc., January 10, 1894.

The late S. W. Gross, for instance, judging from his work on the subject, looked for a stricture in every case of impotence, and if one could not be induced to appear in the deeper parts of the urethra by the irritation of abnormally large sounds or bulbous probes, he remorselessly divided the inoffending meatus itself, whose only fault could have been to act as a barrier to useless and possibly harmful stretching of the important structures deeper down. If a narrow meatus is a cause of impotence, the small mouths of the reigning belles of society must as surely indicate dyspepsia.

This extreme view is, I believe, held by few at present, yet the practice of too many specialists ends and begins within the urethra, even prostatitis being regarded as a stricture of the prostatic urethra, and its treatment confined to repeated dilatation, or more heroic measures that look mainly towards maintaining a really abnormal calibre in this tube.

Far more information can be gained of the condition of the prostate by the rectal touch than by these explorations of the urethra, and I am inclined to think that the male urethra has been about as much abused in this way as the uterus was some years ago by rigid sounds and stems. The recent enormous increase in the expertness of the gynecological finger, within the vagina and rectum, particularly when combined with bimanual palpation, point to a largely unused means of information in male diseases, by which the many abnormal conditions of the prostate, the vesicles, and the ducts may be explored by the rectum. The same avenue is peculiarly well adapted to the interpolar and modified polar applications of electricity, the insensitiveness of the rectum permitting really enormous current strengths being passed through the diseased parts. Intra-urethral exploration and treatment will, of course, be requisite in many cases, the length of the canal and the difficulty of maintaining its calibre being both unique as compared with the female urethra. The possibility of ocular inspection of ulcerated surfaces by means of the endoscope will also lend importance to intra-urethral manipulation, but in the diseases under consideration—prostatitis and other forms of impotence—entirely too much dependence has been placed on this method of examination and treatment.

Chronic prostatitis is unquestionably a microbic invasion of the glandular substance of this sexual organ. An increased secretion accompanies the earlier stages, but later the chief evidence of the trouble is shown in an increased bulk due to parenchymatous enlargement, analogous to what occurs in chronic metritis. Accompanying this catarrhal inflammation of the gland there will be found certain functional derangements of varied character, in accordance with the existing condition of the nervous apparatus. Where no sexual excesses have contributed to or accompanied the condition, I have seen

complete retention of potency by an enlarged prostate. Usually, however, the catarrhal prostatitis seems to be aggravated by sexual indulgence; and I do not doubt but that many cases in young and middle-aged men are caused by sexual excesses, the irritated organ being a ready-made culture medium for stray microbes. The later stages of this catarrhal prostatitis will be found to be accompanied by a catarrhal invasion and distention of the seminal vesicles, which further compromises the functional soundness of the parts. Epididymitis and orchitis may also result, but when they occur are more easily recognized than similar conditions of the internal organs.

I doubt whether simple functional abuse can create these conditions. The most profound nervous or psychic impotence may exist with all the pelvic organs of man in an apparently normal condition. If, however, these chronic catarrhal and parenchymatous inflammations of the pelvic organs be permitted to remain for some months or years, the neuro-muscular derangement is sure to follow. The incapacity for proper functionation on the part of the prostate and vesicles reacts negatively on the spinal centres. Imperfect functionation acts positively upon them; and we sooner or later have a genito-spinal neurosis developed, which turns a pelvic disease into a spinal one.

The field of electricity in these several conditions is peculiarly apparent to the physician familiar with its recent applications in the diseases of women. As a remedy for a chronic catarrhal inflammation of a gland there is nothing superior to the local action of the galvanic current. The negative pole may be applied to the prostatic urethra by the means of Newman's olive-pointed sounds, properly insulated, or in old men by converting a prostatic-curved silver catheter into an electrode by covering it with fused shillas or hard rubber, except a small space back of the eye. This latter is useful in accurately indicating the neck of the bladder by the flow of urine. The positive pole is, however, best when small currents of five to ten or twenty milliampères are to be used, and it is best applied by converting a linen or red rubber catheter into an electrode by winding No. 30 platinum wire around the end, back of the eye, until a half-inch surface is made, the end of the wire being carried through the wall of the catheter and brought out through the tube to make the conducting cord. The outer end remains as a knot within the tube. Such an electrode, an adaptation of Martin's uterine electrode, is extremely convenient and easily cleansed when the basis is the red rubber catheter. If the application is continuous for three or five minutes, five to eight milliampères are sufficient. If, on the other hand, my own method of swelling currents be used, as much as thirty or forty milliampères may be safely employed in skilled hands, the small time during which the current acts preventing much irritation from electrolysis.

This intra-urethral application of electricity may be exceedingly mild or exceedingly violent, in accordance with the skill and judgment of the operator. None but a specialist should employ the method, and it is practically criminal for any one to use it without a meter. The applications should rarely be made oftener than once a week. They are indicated only when prostatorrhea or spermatorrhea is present, when the urethra is obstructed by the growth of the prostate, or when the organ is manifestly enlarged. In either of these conditions it is as valuable as is the Apostoli method in chronic metritis or fibroid tumors of the uterus, conditions closely analogous to those under consideration. The insertion of an electrode into the urethra is never warrantable for the purpose of applying faradic currents, which are equally well directed to the same parts through the rectal wall.

Rectal applications of the galvanic current are usually sufficient for most cases of deranged functionation and incipient enlargements of the prostate. The active electrode is an olive-shaped ball, about the size of the end of the index finger mounted on an insulated staff. This is pressed against the under surface of the gland. In order that the bulk of the current from this may penetrate the prostate and its neighboring structures, the indifferent pole must be on the abdomen, and fully as large and as good a conductor as that used in the Apostoli method. The effect of currents of forty and sixty milliampères thus applied by the swelling method is but slightly unpleasant, and their power to cause absorption of effused and adventitious material and promote healthful contractions of unstriated muscle is very great. In one case, where a cystic accumulation within the left seminal vesicle had been discovered by the rectal touch, a two weeks' continuance of the method had promoted such absorption and resolution of inflammatory products as to permit the vesicle to empty itself. A profuse, clear discharge was mentioned by the patient as having occurred in the morning when this happened, and a re-examination that day showed the vesicle collapsed and of ordinary consistence. Shrinkage of the prostate itself is promoted by the conjoint use of the primary, or coarse wire secondary faradic current, turned on by a controller, with the electrodes arranged as just described. By carrying the active electrode a little higher, which is facilitated by its being hollow and serving to introduce a cushion of water before it from a syringe, the method may be used as a powerful stimulus to an atonic bladder, which is so often found associated with prostatic enlargements. The adherence to the swelling method will permit of daily treatment within the rectum without the mucous membrane being excoriated.

Finally, a most important element in the electrical treatment of impotence is the action of the current on the neuro-muscular

apparatus and the genito-spinal centre. The rectal applications described may be made to produce contractions of various groups of associated muscles by slight changes in the position of the active electrode, simulating successively the several associated movements occurring in functionation. But probably the most valuable detail of the method is the application of the galvanic current to the genito-spinal centre. For this, large currents are used, usually from 60 to 100 milliampères, the patient lying face down upon a large indifferent electrode applied to the abdominal surface. The active electrode, an elastic, wired-cotton pad, about seven inches in diameter, thoroughly wetted and soaped, and attached to the negative pole of the battery, is passed up and down the lumbar region until a good lather is raised. The current is now turned on, and the electrode slowly moved up and down over the centre for five minutes. No better plan of detecting the existence of this centre need be wanted, as erectile sensations are often distinctly produced during the passage of the electrode over the situation of the centre or of its efferent nerves.

The statements of patients as to the effect of these methods on moderate degrees of pelvic and spinal impotence vary somewhat, the general consensus pointing to its great value. In one case the restoration of potency was so pronounced that truly remarkable sexual excess was subsequently indulged in with impunity.

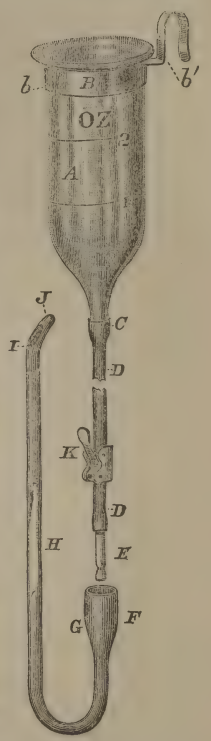
CYSTIC EVACUATION AND IRRIGATION.

By W. Storer How, D.D.S.

The cut shows a three-ounce glass irrigator, *A*, in a brass collar, *B*, open at *b*, to give a spring friction grip, and having a holding hook, *b'*. The pipe *C* enters a three-feet length of rubber tubing, *D*, in the other end of which is a short glass coupling-tube, *E*, ready for insertion in the funnel *F* of the soft rubber catheter *H*, which has a velvet eye, *I*, in the outer curve of the Mercier foot *J*. At *G* is a dent in the funnel *F* to indicate the position of the foot *J* when out of sight in the urethra. The pinch-cock *K* controls the flow of fluid from the irrigator, which is adapted for use by the patient.

A convenient mode of self-operation is as follows: Provide a pint pitcher filled with warm (115° F.) boric acid or other fluid and place on a tray with a few sheets of toilet paper and a bottle of pure, asepticized sweet oil. Put the foot portion of the catheter into the pitcher and set the tray on a chair. Hook the irrigator on the chair back, and sit on a flat-bottomed chair, having the other chair back close to the

right hand. Have a chamber or other vessel on the floor between the feet. Take the catheter in the left hand, wipe it dry with toilet paper, and hold it funnel downward between the left thumb and palm. Pour a little oil around the catheter and draw it down repeatedly while rolling it between thumb and palm to completely coat it—especially the foot end with oil. Hold the penis between the fourth finger and third and second fingers of the left hand, and with the right, conjointly with the left thumb and finger, slowly insert the catheter, keeping in view the dent *G*, so that the foot *J* will properly pass the prostate and enter the bladder with eye *I* dependent to completely evacuate the cyst. Holding the funnel upward and resting the arm so that the parts shall not change position, fill the irrigator and run off an ounce or two into the vessel to warm and fill the tube *D*. Refill the irrigator, insert the coupling-tube *E* in the funnel *F*, which will be full of urine, so that no air will be carried in, release the lever of the pinch-cock *K*, take the irrigator in the right hand and hold it as high as is requisite to cause a free flow of the fluid, the rate of movement being observable through the transparent irrigator. If more than three ounces has been ordered, it is only necessary to refill the irrigator. For repeated irrigation at the same sitting, simply remove the coupling from the funnel and proceed as before. A forked tube or a three-way stop-cock may be substituted for the coupling-tube *D*.



If no flow is apparent on holding up the irrigator, gently push in the catheter a very little farther, and if then there is no flow, stop off the fluid and slowly withdraw the catheter to discover the blood-clot or other cause of obstruction, and report to the attending physician or surgeon.

The apparatus as made is conveniently portable, compact, and composed entirely of glass and rubber surfaces for fluid contact; is without valve or ledge for the lodgement of septic stuff; the fluid movement or stoppage is visible; the hydraulic pressure is gently variable, and cannot be made excessive in force or volume; the position of the inserted catheter eye or foot is indicated; the funnel facilitates coupling, shortens the catheter to about eleven inches, yet safeguards against total insertion, and provides for the easy flushing of the catheter. The funnel also permits the use of a cork or rubber stopper when the conveniently short catheter is fixed for drainage.

The apparatus is especially well adapted for office, clinical, and hospital uses, and is comparatively inexpensive.

Stress is to be laid on the necessity for scrupulously cleanly preparations for evacuation, irrigation, and the subsequent sterilization and preventive care of the catheter. The writer has a fourteen-inch section of three-quarter-inch glass tube with a stationary stopper in one end and a removable stopper in the other end. In this the catheter can be kept either dry or immersed, and the unstoppered tube be asepticized as often as desired. As often as once a week the catheter is coiled in a porcelain-lined vessel and boiling water poured over it, allowing it to remain ten or more minutes to cleanse it from oil residues and render it immune. Thus treated, and using as a lubricant pure olive oil having, say, three drops of fine oil of cinnamon, or ten drops of phenol sodique to the ounce, the catheter surface will not become sticky, nor will it stiffen in months of use.

In operation have light sufficient to see that no scrotal hair or cloth fluff or fibre is carried by the catheter into the urethra. At all times when out of use, carefully keep the insertible portion of the catheter from even a momentary contact with the hand, or *anything* other than its immune resting-place.

THE RELATION OF OPHTHALMOSCOPIC FINDINGS TO DISEASES OF THE CEREBRAL CORTEX, AS ILLUSTRATED BY A SERIES OF OBSERVATIONS UPON NEARLY TWO HUNDRED CASES OF EPILEPSY AND GENERAL PARALYSIS OF THE INSANE.

By Charles A. Oliver, A.M., M.D.,

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This paper resolves itself into a series of broad general formulations and conclusions that are the outcome of seven years' ophthalmic work among the male epileptic and paretic subjects in the State Hospital for the Insane at Norristown, Pa. This work, which has been accomplished both personally and by the aid of competent assistants in the wards of the hospital, the post-mortem room, and the pathological laboratory, has been supplemented by vigorous and conscientious microscopic study of the more than abundant material thus obtained. In addition, it has been greatly aided by extended personal research into the doings and the results of the work of other fellow-laborers in the same branch of medicine.

The following observations, though, of course, tentative in their present condition, and open to further revision as our methods of precision are further developed, are here offered not only as inducements for further research in the same direction, but also because they have been deemed of sufficient surety to guarantee assertion. The resultant conclusion is that which seems to justify the significances of the findings, and is consequently added as the apparent direct corollary of the former.

Observations.—(1) The ophthalmoscopic findings of the living intraocular tissues, especially those of optic-nerve and retinal structure, in cases of epilepsy of sufficient moment and standing (as seen in the detained subjects of asylum life) to give numerous well-pronounced and uncontrollable seizures, are often of such a grade and of such a character as to constitute a type.

(2) The objective peculiarities of such living tissues, as seen in all grades of condition under the magnifying power employed in the direct method of ophthalmoscopy, are characterized by the appearance of a low and chronic form of retinitis and perivasculitis that is associated with a dirty red-gray incipient degeneration of the optic nerve. These retinal and optic-nerve changes in detail may be summarized as follows: increase in thickness of the fibre layer of the retina; enlargement, waviness, and tortuosity of the retinal vessels (especially the veins); opacity and thickening of the retinal lymph-channels; superficial overcapillarity with a decided grayness in the deeper layers of the optic disk; broadening and sharply cut appearance of the scleral ring, especially to the temporal side of the disk; and a granular condition of the choroid in the macular region.

(3) The ophthalmoscopic findings of the living intraocular tissues —especially those of optic-nerve and retinal structure—in cases of so-called general paralysis of the insane are so certain and so persistent in characteristic appearance, and are so increased in amount and degree in proportion as the general disease assumes its latest phases of retrogradation of the subject, that they become eminently characteristic of the type of the affection, and assume a definite expression of the stage of the disorder.

(4) The principal retinal and optic-nerve changes, which are found more pronounced in the third stage of the disease than in the second stage of the disorder, where they may be frequently recognized in their incipiency, are: fibre-layer of the retina, as a rule, diminished in thickness; retinal striation in a few instances seen during the third stage of the disease very pronounced, rendering the disk-edges quite hazy; retinal arteries reduced in size, and at times slightly tortuous; retinal

veins, as a rule, undersized, tapering in some instances as they enter the disk, and quite tortuous in a number of cases; retinal lymph reflexes very few, these being generally limited to the walls of the main vascular stems; fine pin-point opacities in the retina, between the disk and the macula, in a few cases; optic disks decidedly and unequally semi-atrophic, especially in the latter stages of the disease, the degeneration being more pronounced in the deeper layers, and to the temporal side of the nerve-head; capillarity of optic-nerve-head substance materially lessened, the greatest amount of blood-supply being recognized in rather narrow crescentic areas to the nasal side of the disk; the disk, in a few cases seen in the third stage of the disease, of a suffused and gelatinous appearance, its edges being plainly visible, and the surrounding retina being somewhat edematous; scleral ring sharply cut, and, as a rule, broad, this being more noticeable to the temporal side of the optic-nerve-head; broken crescents of absorbing pigment to the inner and outer edges of the disk, these being broader and more crescentic to the temporal border of the nerve-head; and in the majority of cases the choroid is granular and disturbed.

(5) The microscopic findings in the cerebral cortex in most cases of epilepsy where there have been long-standing, frequent, and well-marked general seizures consist principally in degeneration-changes in the nerve-cells, especially of the second layer, and a secondary increase and tortuosity of the vessels themselves, with nuclear infiltration of their walls. Here the nerve-cells themselves become granular, diminished, and shrunken. The periganglionic spaces augment in size, and dilatation of the perivascular lymph-spaces occurs. At times the neurogliar tissue undergoes irregularly-situated increases in amount.

(6) The microscopic findings of the cerebral cortex in cases of so-called general paralysis of the insane consist of degenerative changes in the nerve-cells, and increase of the vessels, with thickening and infiltration of the vessel-walls. Here, from the earliest stages when the arterioles appear distended with a blocking of their lymph-channels with proliferated nuclear protoplasm, causing diapedesis of leucocytes and hematoidin crystals, and pressure paralyses of the smaller groupings, until the development and increase in size of the scavenger cells of Deiters, with a proliferation of their nuclei which feed upon the atrophying nerve material, until the nerve-cells and nerve-fibres become replaced by granular and oily *débris*, which is absorbed and carried off through the larger blood-vessels and lymph-channels and spaces, the morbid process is one of vascular infiltration and nerve-degeneration; and finally, when the neuroglia itself becomes converted into coarse fibrillæ, and the nuclei of the cells are alone visible, the picture of cortex-disintegration is complete.

(7) A careful analysis of the above definitive ophthalmoscopic findings, with the correspondingly known and recognized microscopic changes in the cerebral cortex in the two diseases, not only shows a correspondence in the types of the pathological conditions of the vascular and neural structure of the two membranes in question, but evidences an absolute co-relationship as to degree and amount of tissue-change, though, of course, not as to kind, in the several stages of the two diseases.

(8) When it is remembered that the recent researches of Hatschek conclusively show that the eye of the vertebrate type of animal form springs directly from a portion of the cortex of the embryonic brain, and that the inner or retinal wall of the optic cup undergoes a series of ontogenetic changes that are similar to those that are experienced by the related cortex tissues, and when it is realized that there is an almost exact anatomical relationship in the various superimposing ganglionic and cellular layers between the structures of the post-natal cerebral cortex and the retina, it will be fairly presumable that a diseased condition of the former membrane, if extended over a long period of time, may produce pathological pictures in the latter that are the counterpart of those that are existent in the former.

The conclusion, therefore, from these observations naturally resolves itself into the fact that the morbid process of cortex disease, as seen under the microscope, if long continued and if of any moment, can be recognized ante mortem ophthalmoscopically in the optic-nerve-head and retina by similar relative changes of diseased action in these latter tissues.

CLINICAL DEPARTMENT.

REPORT OF SURGICAL OPERATIONS AND INTERESTING CASES AT THE GERMAN HOSPITAL.

(MARCH 1–JUNE 15, 1893.)

(Service of J. WM. WHITE, M.D.)

[Reported by ARTHUR J. PATEK, M.D., Resident Physician.]

1. CYSTO-SARCOMA OF MESENTERIC GLANDS; EXPLORATORY LAPAROTOMY; RECOVERY FROM OPERATION; DEATH FROM EXHAUSTION IN FIVE WEEKS.

John H., aged 24, German. Previous history: seven years prior to admission noticed a swelling in hypogastric region; growth of tumor was slow until within the past year, when it progressed rapidly. Upon admission an enormous tumor was found occupying the whole of the abdominal cavity, extending somewhat more posteriorly on the right than on the left side; patient suffered little pain from the tumor itself, the only discomfort being that due to the weight of the growth. There was a little at various points, particularly at the original seat of development; the mass was hard and nodulated, more prominent on the right side, and cystic on the left; an exploratory incision was made, extending from the symphysis pubis to a point about two inches above the umbilicus; the mass was found tightly adherent to the abdominal wall on the right side anteriorly, and to the intestines posteriorly; the kidneys were in their normal position; it being impossible to extirpate the tumor, the abdominal cavity was irrigated and the wound closed; patient slowly reacted and recovered completely from operation.

By April 15, general anasarca had developed, and the patient died one week thereafter. Autopsy showed the mass to be a cysto-sarcoma of the mesenteric glands.

2. OVARIOTOMY FOR FIBROID UTERUS; RECOVERY.

Miss E. H., aged 39. Had been suffering for four years with intense pains in both ovarian regions, and nervous prostration resulting therefrom; palpation revealed very tender ovaries; an abdominal incision was made and a lemon-sized fibroid growth of uterus discovered; the ovaries, though apparently normal, were removed in the hope that the fibroid would cease growing, decrease in size, or disappear altogether, and the relief of symptoms follow; the pedicles were tied with silk ligatures, and the abdominal wound sutured with silkworm-

gut; convalescence, though uncomplicated, was slow because of patient's neurotic temperament; she left the hospital twelve weeks after the operation, in good condition; she has had no return of symptoms, and is at present in excellent health.

3. OVARIOTOMY FOR FIBROID UTERUS; RECOVERY.

Mrs. H., aged 33. History quite identical with that of previous case; an abdominal incision was made and revealed a number of fibroids attached to uterus; technique of operation as in previous case; convalescence uninterrupted. Patient discharged seven weeks after operation in good condition.

4. CARCINOMA OF GALL-BLADDER; GASTRO-ENTEROSTOMY; DEATH FROM SHOCK.

Catherine W., aged 42. Had been suffering since November, 1892, with pains in epigastric region, loss of appetite, and vomiting, and had lost much flesh since onset of disease; upon admission emaciation was marked, face pale but not cachectic; the vomited matter had always been grayish in appearance and never contained blood or coffee-ground material; constipation was at no time very obstinate; examination showed the presence of a distinct hard mass in the epigastrium, apparently about the size of an orange and almost entirely to the right of the median line; the location of the mass suggested a possible involvement of the gall-bladder; at the very onset of the subjective symptoms, patient had a slight attack of jaundice; however, there had at no time been any colic, and from the absence of biliary symptoms, little doubt as to the probable existence of a gastric neoplasm remained; an incision was made in the median line, the abdominal cavity explored, and the tumor found to be a large neoplasm of the pylorus impossible of removal; the gall-bladder could not be brought into view; a gastro-duodenostomy according to Abbey's method was then performed; patient died twenty-six hours after operation without having reacted. Post-mortem examination revealed a very large carcinoma of the gall-bladder firmly attached to the duodenum, and infiltrating its wall.

5. APPENDICITIS; RECOVERY.

C. H., aged 31. Three days previous to admission was taken with pain in right iliac fossa, which steadily increased in severity. There was an imperfect history of chills and slight constipation; upon admission the signs of local inflammation were very apparent; there was much pain and tenderness in the appendiceal region, with redness, swelling, and edema; temperature, 103° F.; an incision was made in the right linea semi-lunaris; the cecum and appendix were found inflamed;

the latter was situated behind the former and contained a hard concretion; the inflammatory process had closed off the general peritoneal cavity; the characteristic fecal odor of appendiceal inflammations was very manifest; the peritoneal covering of the appendix was incised, pus immediately escaping; the appendix was ligated and cut away, the cavity irrigated with hot distilled water, drainage-tube introduced, and the wound closed; convalescence was uninterrupted, patient being on his feet at the end of the fourth week.

6. STRANGULATED FEMORAL HERNIA; RADICAL CURE; RECOVERY.

Joseph K., aged 59. Had for many years been wearing a truss for left femoral hernia; forty-eight hours before admission, however, the hernia had descended and proved irreducible by taxis; incision was made over the tumor; the gut was found to be quite dark; the constriction at the falciform process was relieved and the bowel returned; attached to the hernial sac was a large irregular mass apparently of glandular structure; this was cut off with the ligated sac; the stump was now stitched into the canal by a silk ligature thrown around Poupart's ligament; a second suture was introdnced in the fascia about the opening, closing this; superficial sutures and drainage concluded the operation. Patient was discharged in four weeks cured.

7. STRANGULATED FEMORAL HERNIA; RADICAL CURE; RECOVERY.

Mrs. M. D., aged 50. History as in previous case: Strangulation had existed thirty hours prior to admission; herniotomy was performed as described above; no drainage was introduced; all dressings were removed two weeks after operation.

8. OLD HERNIAL SAC; EXCISION; RECOVERY.

Mrs. P., aged 40, was admitted, giving the following history: Two weeks ago first noticed a tumor in inguinal region, appearing after a strain at stool; tumor was in the line of inguinal canal, quite hard, dull on percussion, movable, though attached at upper end, painless, irreducible, and gave no impulse on coughing; though there were no urgent symptoms attending the presence of this tumor, the patient desired its removal; the usual incision was made, and a mass of old inflammatory tissue, about one-half inch in thickness, was cut through before the real nature of the condition was apparent; an empty sac was discovered containing some peritoneal fluid, and communicating with the abdominal cavity by a very small opening; the sac was treated as in the previously recorded cases. From the appearance of things the condition was evidently an old one, and the history of sudden onset incorrect, there having in all probability existed an old reducible hernia, the lumen of whose sac had become partially occluded.

9. OMENTAL HERNIA; OPERATION; RECOVERY.

Mrs. H., aged 34, underwent an abdominal section one year ago for extra-uterine pregnancy; twelve hours previous to admission the abdominal wound, without having been subjected to any particular strain, gave way, and a mass of omentum, about the size of a walnut, protruded through the opening; there had been considerable hemorrhage before her admission; the omental mass was ligated with silk and cut away, the stump being returned to the abdominal cavity; near the line of the original incision there existed a small abscess of the abdominal wall; this was explored and curetted, revealing a full-sized ligature of silkworm-gut; this had evidently been the starting point of the inflammation, resulting in a weakening of the abdominal cicatrix; the edges of the wound were freshened up, and sutures introduced; patient was discharged four weeks after admission.

10. HYDROCELE OF CANAL OF NUCK; OPERATION; RECOVERY.

Mrs. M. W., aged 29, was admitted, giving following history: Two weeks ago a tumor suddenly appeared in the right inguinal region; it seemed to vary in size at different times, and occasioned but little discomfort; there was no marked constipation at any time. Physical signs: A smooth, slightly fluctuating oval mass, about the size of a small egg, not adherent to the skin, passing downward and inward, apparently below Poupart's ligament, and outside of the pubic spine; the mass was somewhat tender, and while freely movable in the line of its long axis, could not be lifted from the underlying tissue; distinct impulse on coughing was at no time elicited, though the whole mass bulged forward with every cough, and remained irreducible; percussion elicited at times tympany, at times dulness; the symptoms favored incarcerated femoral hernia. Operation: The usual incision was made over the tumor, and the dissection carefully carried down to the mass itself, which was found covered with a thin membrane resembling very much peritoneal tissue; the tumor now presented the appearance of a cyst, and when carefully dissected away from its attachments and followed up along its long axis, its bulk was found to narrow down to a stalk issuing from the inguinal canal; the wall being nicked, a serous fluid escaped, and the tumor collapsed; the condition turned out to be a hydrocele of the canal of Nuck; the sac was treated, and the operation concluded as in case of hernia; patient was discharged cured the fourth week after operation.

11. FRACTURED PATELLA; OPEN OPERATION; RECOVERY.

Mrs. T. H., aged 39, was admitted, March 3, suffering with a fractured patella of four months' standing; she had been treated by an

irregular practitioner, who applied a plaster-of-Paris dressing; for some weeks she enjoyed a limited use of the limb, though for one month prior to her admission she had no use of it whatever; the fragments were fully one inch distant from each other, the upper being by far the smaller. Operation: After thorough antiseptic cleansing a median longitudinal incision over the fragments was made, exposing them and opening the knee-joint; the fibrous tissue covering the ends of the fragments, and bridging the space between them, was cut away, and the opposing surfaces chiselled and trimmed for accurate apposition; a Barker's needle was then made to penetrate the ligamentum patellæ from before backward, carried upward, piercing the tendon of the quadriceps extensor from behind, thus emerging above the upper fragment; the needle was armed with silver wire and withdrawn; the limb being elevated, the two fragments were brought in apposition by the use of all justifiable force, and the wire twisted; the joint was now thoroughly irrigated with antiseptic solution, and small rubber drainage-tubes inserted through counter-openings on each side; silkworm-gut sutures were now inserted, and the wound dressed antiseptically; a long posterior splint was applied, the limb placed in a fracture-box, and elevation maintained; the tubes were removed in three days, and all stitches and dressings fourteen days after the operation; union was firm and bony; patient was now able to walk without any pain, but was still too timid to attempt bending the knee; subsequently she learned to walk with ease and confidence.

12. FRACTURED PATELLA; BARKER'S OPERATION; RECOVERY.

J. J., aged 20, fractured his patella on the night of March 20, while indulging in some friendly sparring; upon admission, one hour after the accident, there was slight separation of the fragments, and but little exudation into joint; a temporary dressing was applied; on the following day Barker's operation of carrying a loop subcutaneously around the fragments was performed, heavy silk thread being used. Before knotting the ligature the two fracture surfaces were forcibly rubbed together, to stimulate action and remove any interposing clots, and the coagulated blood expressed with the hands through the small incision made; the limb was dressed while in elevation, and maintained in this position; the patient was discharged five weeks after admission enjoying good use of limb.

13. COMPOUND COMMINUTED DEPRESSED FRACTURE OF SKULL; TREPHINED; RECOVERY; DEVELOPMENT OF MANIA.

Mr. A. McE., aged 45, was always a very hard drinker, and has occasionally been somewhat mentally deranged. While working on

the railroad track was struck by a locomotive, sustaining a compound comminuted depressed fracture of frontal bone on left side, involving its orbital plate, and a multiple fracture of right forearm ; subconjunctival hemorrhage existed on left side, and the lids of both eyes were very much tumefied ; all loose fragments of bone were removed, and the depressed bone elevated ; about one square inch of cortex had been stripped by the accident of both bone and membrane ; drainage was secured, and the wound closed ; the nostrils were loosely plugged with iodoform gauze ; drainage-tube was removed in four days, and all dressings in two weeks ; though patient was quite rational for a few days after accident and operation, his mind gradually grew weaker ; he soon developed an acute mania, and it was found necessary to transfer him to the Philadelphia Hospital for the Insane.

14. COMPOUND COMMINUTED DEPRESSED FRACTURE OF SKULL ; TREPHINED.

A. P., aged 40, was struck by a locomotive, sustaining a compound comminuted depressed fracture of skull, involving frontal bone of right side. A depression was marked at the external border of the orbital ridge, and leading from this three fissures,—one posteriorly, one towards the median line, and a third extending into the orbit ; the skull was trephined, some blood-clots removed and the depressed bone elevated ; the anterior cerebral lobes were much depressed, leaving a hollow between its membranes and the frontal bone, suggesting a probable laceration of the brain substance beneath ; a good deal of cerebro-spinal fluid escaped through a puncture in the dura ; drainage-tube and gauze were inserted and the wound dressed in the usual manner ; pus was manifest on the first dressing, and continued discharging throughout. Although patient was clear-headed for a few days after the accident, he soon developed a semi-stuporous condition, remaining thus until removed by his family, contrary to advice, three weeks after admission.

15. SIMPLE DEPRESSED FRACTURE OF SKULL ; TREPHINED ; RECOVERY.

E. P., aged 16, fell from a tree, sustaining a simple depressed fracture of skull in the occipital region. There were no signs of compression ; the skull being laid bare, an area of about four square inches was found depressed ; a button of bone was removed, the depressed area elevated and a puncture made in the dura to give exit to the fluid which it was evident from the tension existing had collected behind the membranes ; a small amount of blood and some cortical matter exuded ; the dural incision was closed with a silk suture, drainage introduced and the wound closed and dressed. Perfect recovery followed, and patient was discharged in three weeks ; all dressings removed.

16. AMPUTATIONS.

M. M., aged 30; compound comminuted fracture of arm; amputated at lower third of humerus; recovery.

J. B., aged 42; compound comminuted fracture of leg; amputated below tubercle of tibia; recovery.

L. B., aged 28; compound comminuted fracture of leg; amputated below tubercle of tibia; anterior flap ulcerated, necessitating reamputation at knee-joint; recovery.

17. VAGINAL HYSTERECTOMY FOR PROLAPSE; DEATH.

Mrs. S. McG., aged 45, had been suffering six years with a complete prolapse of uterus, with rectocele and cystocele; the tumor measured fully eight inches in length; for a distance of about six inches on anterior and posterior surfaces the cystocele and rectocele respectively were prominently indicated; with much difficulty the uterus was separated anteriorly and posteriorly from the bladder and rectum respectively; the broad ligaments were then ligated in segments and reinforced by clamps; these attachments being severed, the uterus was removed; owing to the intense vascularity of the organ, hemorrhage was continuous throughout the operation, though every effort was made to check it; the cystocele and rectocele were returned into the pelvic cavity and light packing introduced; there was no secondary hemorrhage, though patient died from exhaustion on second day following operation.

18. EXCISION OF TUBERCULAR CERVICAL GLANDS.

D. S., aged 34; the chain of cervical glands, several of which had already undergone suppuration, was thoroughly excised, and a small amount of iodoform emulsion introduced before wound was closed. Patient was discharged in three weeks, the wound being perfectly healed.

19. ADENO-SARCOMA OF NECK; EXCISION; RECURRENCE.

C. S., aged 61; tumor had existed about six months, and was now adherent to sheath of vessels and sterno-mastoid muscle, and extended downward to beneath the clavicle; the whole growth was carefully excised; four weeks after this operation, a recurrence of the tumor was again clearly demonstrable at the original site.

20. DOUBLE URETHROTOMY; URINARY EXTRAVASATION; DEATH.

T. Q., aged 44, had been suffering for fifteen years with strictures which latterly had become quite troublesome; urinary extravasation developed four days before admission; when brought to hospital patient

was in a septic condition, being somewhat delirious and having a temperature of 102° F.; scrotum and penis showed marked urinary infiltration, and proved when free incisions were made to be thoroughly saturated with fetid pus; double external urethrotomy was performed, one incision being made at the peno-scrotal junction, and a second in the perineum; internal urethrotomy was also done; catheters were introduced into the bladder through the penis and the perineal incision, thus establishing thorough drainage. The patient's condition steadily became worse, the corpora cavernosa sloughed, uremia supervened, death finally ensuing four weeks after the operation.

21. DOUBLE URETHROTOMY; RECOVERY.

F. D., aged 51, had suffered with usual symptoms of stricture for several years. Internal urethrotomy was performed with Otis's instrument, and perineal incisions made over staff introduced into bladder. The usual after-treatment was observed. Patient made complete recovery.

22. CHRONIC CYSTITIS AND STRICTURES; DOUBLE URETHROTOMY.

J. P., aged 30, had been suffering for six months with chronic cystitis, the result of anterior and posterior strictures. Urethrotomy was performed as above, and thorough drainage established for bladder. Perineal wound healed perfectly. Patient died from uremia four weeks after operation. Autopsy revealed old cystitis, tuberculous kidneys, and purulent bronchitis.

23. CARCINOMA OF BREAST; EXCISION; RECOVERY.

M. H., aged 28. Attention was called to a small, hard nodule in breast a few weeks after its first appearance. Excision was easily accomplished, for there was as yet no involvement of the axillary glands. Perfect recovery ensued. Section proved tumor to be a carcinoma.

24. EXCISION OF SHOULDER-JOINT.

E. M., aged 40, upon admission had large discharging sinuses on upper arm and over scapula, the result of previous incisions for the relief of purulent collections. The process of necrosis had eaten away the head of the humerus and had obliterated the glenoid cavity. Amputation was advised, but refused. The diseased bone was removed, but, as was expected, healing did not take place, and the arm was left as useless as before.

25. CARIES OF SUPERIOR MAXILLA.

Mrs. O., aged 25, had for three months prior to admission been suffering from discharging sinuses issuing from carious bone. The

sinuses were enlarged, the diseased bone thoroughly removed with chisel and gouge, and the wound packed. When patient left hospital there was every evidence of ultimate relief of the trouble.

26. HYDROCELE; ASPIRATION AND INJECTION OF IODINE.

Three cases, two of which were double, were treated by this method. None have as yet reported a recurrence of the trouble.

FRACTURES.—MARCH 1–JUNE 15.

Injury.	No. of Cases.	
Skull: Compound fracture of vertex	3	
Fracture of base with fractured ribs and clavicle	1	
Depressed fracture	3	(Reported above.)
Patella: Simple transverse	2	" "
Thigh: Simple	3	
Tibia: Simple	2	
Compound	1	
Tibia and Fibula: Simple	5	
Compound	2	
Multiple	1	
Pott's: Simple	5	
Ribs	3	Admitted for a few days because of some complication.
Humerus and Ribs	1	
Clavical	5	
Sternum	2	
Thigh, Humerus, Radius, and Scapula	1	
Pelvis: Comminuted	1	

The treatment in above cases was as follows:

Basal fracture of skull: Antiseptic spraying and plugging of nostrils and ears.

Fracture of thigh: Sandbags and extension.

Fracture of leg: Fracture-box.

Compound fractures of leg: Frequent dusting with iodoform until all bleeding was checked and a crust formed; this was covered up with layers of iodoform gauze and towels placed in an imbricated manner so as to allow exposure of wound and application of iodoform without its entailing any disturbance of injured limb.

All but the last two of above cases recovered.

A CASE OF EXAGGERATED POLYURIA OF PREGNANCY.

(Service of B. C. HIRST, M.D., University Maternity Hospital.)

Z. M., colored, aged 20, has always enjoyed good health; became illegitimately pregnant in February, 1893. In August of the same year she noticed an increase in the frequency of micturition and in the quantity of urine voided. She began to complain also of excessive thirst and dryness and itching of the skin; no constipation. A progressive increase in the quantity of urine occurred up to the termination of pregnancy in November. The woman was under observation two weeks prior to delivery. During this period the urine excreted varied in amount from 198 to 222 ounces per diem. The specific gravity was 1003. Careful examination failed to reveal the presence of albumin or sugar. It was suggested as an interesting observation to compare carefully the amount of fluid ingested with the amount of urine voided. The latter reached in the twenty-four hours 202 ounces. The woman drank 178 ounces of water and 20 ounces of milk and coffee. This left but four ounces to be accounted for in the food-stuffs taken.

The patient passed through a normal and comparatively easy labor.

The day after delivery the amount of urine dropped almost one-half. There was also a corresponding diminution in the thirst.

JAY F. SCHAMBERG,
Resident Physician.

THE EXAMINATION OF GYNECOLOGICAL SPECIMENS.

IN order to extend the usefulness of the Pathological Laboratory of the Gynecological Department of the University of Pennsylvania, the following plan has been adopted:

Any physician may send to the pathological laboratory any specimen for examination on which the diagnosis or the prognosis of a gynecological case may depend. A fee of five dollars will be charged for such examination in case the patient is able to pay. If the physician states that his patient is too poor to pay, the examination will be made free. The necessity for some arrangement of this kind, especially in making an early diagnosis of malignant disease of the uterus, is widely felt.

The plan is applicable to private, not to hospital, patients. The specimen should be placed in 95 per cent. alcohol, and directed to the Professor of Gynecology, Hospital of the University of Pennsylvania, 3400 Spruce Street, Philadelphia.

A brief history of the case should be sent with each specimen.

A report will be returned to the physician within two weeks after the receipt of the specimen.

EDITORIAL.

THE TREATMENT OF TRAUMATIC PERITONITIS WITHOUT EVIDENCE OF EXTERNAL INJURY.

CONSIDERING the energy with which abdominal surgery has been extended into new regions during the past few years, it is strange that the field of traumatic peritonitis without external injury has not lured the ambitious celiotomist into its territory. Although there may have been at times a seemingly unnecessary activity in exploring the peritoneal cavity, still the dominant objects have been the saving of life and the alleviation of suffering. That a large measure of success has attended these efforts will be freely admitted by all. It is certainly true that the abdomen may be opened and the pelvic cavity invaded, for the purpose of relieving various abnormal conditions, with an exceedingly small mortality. Operations for disease of the abdominal organs proper have been much less successful. This is probably due to different factors. In the first place, the surgical diseases affecting the abdominal organs are, in the majority of cases, acute, while in the pelvis chronic disease is more commonly met with. Again, the diagnosis is usually much more difficult in abdominal than in pelvic affections, inasmuch as the latter are susceptible of more direct examination, and, consequently, the prospect of operating in the former at the proper time is correspondingly small, dangerous delays often being unavoidable because of uncertainty regarding the nature or exact stage of the existing condition. It may be that the technique of abdominal surgery is still imperfect owing to the relative infrequency of these operations, and, finally, inflammation of the pelvic peritoneum is much more apt to remain localized than is that of the abdominal cavity.

It is submitted, however, that these considerations should not deter the surgeon from interfering in affections of the abdominal viscera whenever modern surgical principles are applicable. The treatment of traumatic peritonitis, unaccompanied with a wound of the abdomen, receives but brief attention in the text-books. It is recommended in these cases, if there is evidence of rupture of the intestine or of hemorrhage, that celiotomy should be performed; without such evidence, conservative treatment is to be employed. It is here that a difficult problem arises. How shall we detect a slight laceration of the intes-

tine or contusion of so grave a nature as to lead to sloughing, or internal hemorrhage of so mild a degree as to be amenable to surgical measures? In those most grave cases in which the evidence is plainly manifest the injury is apt to prove so rapidly fatal that, unless the surgeon be on the ground at the time of the accident, his offices will usually not be required.

In this connection two cases reported by Frederick Wiggin (*New York Medical Journal*, January 20, 1894) are of great interest. The first case was a lad, aged 14 years, who was kicked in the right lumbar region by a calf. Severe pain followed immediately, which, however, soon passed off, and he continued with his usual vocation. The following day he attended to his duties as usual. That evening he was seized with violent colicky pains, nausea, and vomiting. A physician was called, and the boy was treated secundum artem. Five days after the accident, Dr. Wiggin was called in consultation. General suppurative peritonitis, far advanced, from rupture of the intestine, was diagnosticated, and, although operation promised almost nothing, it held out the only hope for recovery. Celiotomy confirmed the diagnosis: a large amount of pus was found in the peritoneal cavity, and a rupture of the ileum was detected. The latter was closed by Lembert sutures, and the abdomen thoroughly irrigated and drained. Death occurred six hours after the operation.

The second case was that of a colored boy, 15 years old. Immediately following a kick of a horse in the right lumbar region the patient complained of severe pain, accompanied by nausea. Vomiting, first of food and later of blood, soon supervened. Evidences of peritonitis were visible the same evening, and, continuing the next day, celiotomy was performed. An area of the ileum, near the jejunum, was found so bruised that it was deemed best to resect six inches. It was found afterwards to have been the seat of a slight rupture. The ileum was united by Maunsell's method. The patient made a good recovery. It is reasonable to infer that the first case would also have recovered if operation had been resorted to in time.

The above report impressed the writer as one having unusual importance, because two similar cases came under his observation within a year. Both were treated conservatively, and both died. The history of one of these was almost identical with that of the first case reported by Dr. Wiggin: A young man, a farm-hand, aged 19 years, was kicked in the abdomen by a horse. He continued his work that day and part of the next, but was finally obliged to give up on account of abdominal pain. The following day he consulted a physician, who advised him to come to the hospital, which he did on the evening of the second day after receiving the injury. At this time the classical

symptoms of peritonitis were present; these rapidly increased in severity, and death took place two days after admission. The history of the other case referred to was in the main a repetition of the one just described. Following a kick in the abdomen by a cow, symptoms of peritonitis gradually developed, then rapidly became aggravated, and death followed.

It does not seem possible that there could have been a gross laceration of the intestine in either of these cases, but, in the light of Dr. Wiggin's experience, it is probable that the wall of the intestine at some point was so severely contused that its vitality was destroyed, and sloughing followed in consequence, causing septic peritonitis. If this theory be correct, and the analogy with Dr. Wiggin's cases would so indicate, both lives should have been saved by early celiotomy. Unfortunately, a post-mortem examination was not allowed in either instance; it is impossible, therefore, to do more than speculate as to the real lesion present.

A careful study of all the recorded cases, successful and unsuccessful, has led Dr. Wiggin to attribute the failure of surgical measures to (1) delay, (2) hemorrhage, and (3) failure of the suture and septic peritonitis. Delay is responsible for by far the greatest number of deaths, and is to be obviated in the future by a fuller knowledge of the meaning of the symptoms in these cases. The important factors bearing on the diagnosis are given as follows: The history of an injury, persistent nausea, hemorrhage (from the stomach), prolonged shock, rise of temperature, increasing rapidity and weakness of the pulse, increased frequency of respiration, rigidity of the abdominal muscles, persistent pain, with or without pressure, and the facial expression.

A timely word is also uttered in regard to the administration of the anesthetic. Perhaps the most important assistant for the success of the operation is the etherizer.

We feel that a closer study of the symptomatology of these cases, and the application of the same surgical principles as already have been employed for some years in gynecology, will lessen the mortality from this form of peritonitis.

THE NUMBER OF STUDENTS IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.

In the March issue of the MAGAZINE, last year, we had the pleasure of announcing that the medical class at the University was the largest that had ever assembled in one year in any medical institution in America. In view of the compulsory four-years' course of study,

inaugurated at the opening of the present session, it is with especial gratification that we are able to announce the flattering total of 801 active students now in the Medical Department. This is but forty-five less than the number in attendance last year, and far exceeds, we believe, the attendance at any other American medical school. That the present enormous class has been obtained, in spite of the increased time and expense required by the four-years' course, and when many have been deterred from beginning or from continuing their studies on account of the present financial stringency, is a most complete endorsement of the advanced position taken by the University in the movement to secure "higher medical education."

THE FACILITIES OF THE PATHOLOGICAL LABORATORY OF THE GYNECOLOGICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA EXTENDED TO THE PROFESSION.

We desire to call attention to a plan proposed by Professor Penrose, and published in another part of this Magazine, of which we feel confident many physicians will avail themselves. The busy physician, both in the city and in the country, is, for a variety of reasons, unable to make proper microscopical examinations of pathological specimens. He usually depends for such examinations upon the services of some recent medical graduate who is just from the pathological laboratory of his school, and who has the time to use his microscope. If such services are not available, the examination is not made, and thus what might have proved most valuable information is wanting; and in case the diagnosis is uncertain, the case is allowed to pursue its wonted course, until time clears up the doubtful points. Such waiting is fatal in malignant disease, where early diagnosis is essential to the success of the surgical treatment.

In the University Hospital microscopical examination is made of an excised portion of tissue in every case where there is any suspicion of malignant disease of the uterus. In this way cancer of the cervix uteri has been recognized in the earliest stages,—when it existed as a small, hard nodule, or as a superficial ulcer; and radical surgical treatment instituted at this time gives every hope of permanent cure.

It is unfortunate that the hospital patient alone should receive all the benefits to be derived from the most recent additions to pathological and surgical science. The plan referred to extends the usefulness of the University Hospital beyond its own inmates to all women, whether rich or poor.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D.

Typhoid Fever Due to Infected Milk.

Sedgwick and Chapin (*Boston Medical and Surgical Journal*, November 16, 1893) report an epidemic of typhoid in Springfield in which the source of infection was proved to be milk brought from a particular farm. The milk was placed in cans, the cans were then immersed in the water of a well, in order to cool the milk. The well was covered with loose planks, over which the farm hands walked, and bits of dirt and manure were lying about which easily fell into the well. The cans were stopped with wooden plugs, and it was found that a considerable amount of the water leaked into the cans around the plugs. There had been several cases of typhoid fever on this farm before the cases in Springfield. Sedgwick (*Ibid.*) reports another epidemic in Somerville, likewise due to infected milk. In this instance one of the handlers of the milk had typhoid fever for three weeks before he stopped work on the milk. In a very short time afterwards his customers were seized with the fever.

Tuberculosis in Children.

Osler (*Archives of Pediatrics*, December, 1893) believes that a *paid* pathologist should be appointed to every foundling asylum in the country. By a careful study of all the cases of death he could arrive at a knowledge of the prevalence of tuberculosis, which would be of great value in deciding upon sanitary arrangements.

Fever.—This symptom is usually associated with an active development of tubercles, their caseating, softening and suppurating, or with a peritubercular pneumonia. There is a type of fever acute and severe which often causes death before there are any advanced tuberculous changes. The symptoms are those of a general infection, rather than any local disorder, and in the child it often comes on insidiously with vomiting. It might without an autopsy be readily mistaken for typhoid fever. Another form is the *typho-tuberculose*, a continuous tuberculous fever; it develops in connection with tuberculous infection, but, unlike miliary tuberculosis, is favorable in its course. It closely resembles typhoid fever. He remarks that in a child when there is a set of symptoms which appear like typhoid fever, but not marked enough for a definite diagnosis, the question of tuberculosis should always be raised.

Neurosis Following Typhoid Fever.

Osler (*American Journal of the Medical Sciences*, January, 1894), in a paper on the above subject, refers to the article by Gibney, of New York, in which he describes what he believes to be a perispondylitis following typhoid fever. In these cases the patient has severe pain in the back upon movement, with some tenderness upon pressure. The pain usually comes on during or after convalescence. Dr. Osler cites three cases in which he believes the condition to be a neurosis, and not due to any actual inflammation. He thinks it likely Dr. Gibney has described several distinct conditions as "typhoid spine," while he believes there may be a perispondylitis in some cases, and, further, that all painful spines after typhoid fever are not neurotic.

Tic Douloureux.

The *Revue de Thérapeutique Médico-Chirurgicale*, December 15, 1893, has an abstract of a paper by Jarre on the above subject. Among his conclusions are the following:

I. The disease known as spasmodic neuralgia, epileptiform neuralgia, tic douloureux of the face, etc., is due to a peripheral lesion which occupies one of the terminal branches of the fifth pair of nerves. II. The invariable situation of the lesion is a spot of greater or less extent situated on the alveolar border of one or the other jaw; it is the seat of a cicatrix consecutive with some previous accident to the part. IV. The rational treatment of tic douloureux consists in the complete removal of a segment of the alveolar border, which is the seat of the original trouble. VII. The actual permanent results place this heretofore incurable malady, by means of a slight surgical operation, in the list of entirely curable diseases.

Tetanus of the New-born.

Papienske (*Jahrbuch für Kinderheilkunde*, Vol. xxxvii, Part 1, 1893) reports ten cases of trismus with one recovery. He concludes that: (1) Traumatic tetanus is caused by a specific bacillus (Nicolaier's) which finds its entrance into the wound by means of dust, bits of wood, etc. (2) That tetanus of the new-born is identical with traumatic tetanus of adults and is caused by infections of the umbilical wound by tetanus bacilli. The infection is caused by nurses who handle the cord, or by the use of a dirty dressing for the cord. (3) The bacilli are limited to the point of infection and cause the disease by the toxine developed.

The majority of the cases developed soon after the falling of the umbilical cord. High temperature is common in the affection; it may be due to the action of the toxine on the heat centre, or may be due to pyemia. Nine of the cases were treated by cauterization of the umbilical wound; in one the wound was excised. The internal treatment was various and the case which recovered received no medicine.

He further concludes:

(1) While tetanus of adults and that of the new-born are identical, the latter is more fatal.

(2) The latest therapeutics have as yet had no favorable effect on the course of the disease.

(3) As cases have recovered by all the different methods of treatment, the affection must be placed in the category with self-limited diseases.

(4) When the incubation stage is from one to five days the cases are always fatal; recovery may occur with an incubation stage of six or more days.

Diagnosis of Hereditary Syphilis.

Fournier is quoted (*Revue Générale de Clinique et de Thérapeutique*, October 25, 1893) as giving the following diagnostic points:

(1) The *cicatrices* are orbicular or serpigenous, disposed in groups about the lips, nose or loins.

(2) The arrest of development, small stature, retardation of menstruation, and a general infantile appearance of the adult.

(3) Deformities of the cranium,—projection of the forehead, prominent frontal protuberances, and lateral enlargement of the cranium.

(4) The peculiar sabre shape of the tibia.

(5) Atrophy of the testicles and of the mammæ.

Intubation in Whooping-Cough.

Taub (*Jahrbuch für Kinderheilkunde*, Vol. xxxvii, part 1, 1893) reports two cases of whooping-cough in children of six and eight months respectively, in which he intubated the larynx. The attacks of spasmodic coughing were unusually severe and threatened to end the lives of the children. The tube was allowed to remain in position for three to four hours, and then removed. It was reinserted when the attacks of coughing became again severe. While the tube was in position there was no cough. The children did not begin to cough after the removal of the tube for several hours. The first child was intubated four times, the second seven times. He thinks the operation proves beneficial, by causing anesthesia of the larynx.

He does not advise all cases to be intubated, but only the very severe cases in children under ten years of age.

Dilatation of the Stomach.

Broadbent (*British Medical Journal*, December 2, 1893) gives as the causes of this condition: (1) Improper and injudicious food and feeding. Appetite which would be satisfied with a small amount of ordinary food is re-awakened by a succession of dishes, and thus the stomach is completely overloaded; habitual taking of food between meals is ruinous to digestion; food taken in a condition of exhaustion or fatigue is never properly digested; rushing from work to food and *vice versa* are fertile sources of indigestion. (2) Functional derangements of nervous origin. Many of the dyspeptics are neurotics, and the neurosis is the cause of the dyspepsia, and not the reverse, as is so commonly thought. (3) Anatomical deformity. Very frequently the pylorus is suspended high up, and this allows the cardiac end to be dragged down when the stomach is overloaded.

Symptoms.—The most characteristic symptoms of dilatation are: copious vomiting, the vomited matter being of a brown color and offensive odor; eructations of foul gas; impairment of appetite, though there may be an inordinate craving for food; palpitation of the heart, oppression of breathing on lying down; sleeplessness; nocturnal asthma; vertigo; and nightmare.

Diagnosis depends upon physical signs—these are an abnormal area of stomach resonance, with a tympanitic echo of the heart-sounds; splashing and the tinkling of water in the viscus when the patient drinks; and, finally, the actual measurement of its contents by means of a stomach-tube.

In percussion, the patient should be examined lying down and sitting up. The use of the stethoscope by placing the bell over a resonant area and tapping the abdomen with the tip of the finger will enable one to determine whether the resonance is confined to one viscus. The normal stomach contains from one to two pints. Three pints may be considered a dilatation.

Appendicitis.

Richardson (*American Journal of the Medical Sciences*, January, 1894) gives his views upon this important affection, based upon his observation of 181 cases.

Diagnosis.—With very rare exceptions, a diseased appendix is the cause of all peritonitis, local or general, occurring in males. In children, abdominal symptoms may often be due to disease of distant parts. Errors are more likely to be made where there are symptoms of obstruction.

Pain (abdominal), associated with constitutional disturbances, rise of temperature and pulse, is usually due to disease of the appendix. Often the pain is in the epigastrium, but as the case progresses is likely to become localized over the appendix.

Tenderness is usually most marked over the appendix.

Vomiting usually follows the pain in appendicitis, whether the case is light or severe. In unfavorable cases the vomiting soon becomes stercoraceous, or may be coffee-ground.

Diarrhea is frequently present in the first hours of the attack.

Time of Perforation.—In all cases of severe appendicitis there is a larger or smaller perforation with extravasation, and in all severe cases the *first* symptoms are due to perforation.

The Pulse is early affected, ranging from 75 to 120. In the author's experience, a pulse of 120 or more is a grave symptom as to prognosis.

Temperature.—Fatal cases may have a low or satisfactory temperature curve, while favorable cases may have an evening temperature of 104° to 105°.

Respiration is usually accelerated; a very rapid respiration is a grave symptom.

Distention may be due to constipation, and where there is no inhibition of peristalsis simply gives rise to discomfort. If auscultation shows the presence of peristalsis, peritonitis is not likely present, and cathartics may be given.

Rectal and Bladder Symptoms.—Pain in the bladder and frequent micturition are often present. A rectal examination should always be made, and sometimes will reveal a tender spot.

Leucocytosis is very constantly present where there is perforation.

When to Operate.—A local abscess should be opened and drained; in most cases the adhesions should not be broken down. In acute cases, with signs of a general peritonitis, he believes an early operation will save a case that would otherwise die. In relapsing cases, an operation during health has a very low mortality, and should be performed where there is believed to be chronic trouble.

Treatment of Distention.—In general peritonitis with paralysis of the bowel, the administration of salines is worse than useless.

Use of Salines.—In mild cases of catarrhal variety, and even where there is slight extravasation with peritonitis, salines may be given in the beginning and throughout the disease, but patients will do as well under the opium treatment or no treatment at all. In severe cases, and a mild case may become a fulminating one, salines should never be used. He believes that salines should never be used in the beginning of an attack of appendicitis.

Prognosis depends entirely upon the variety. In mild cases recovery has taken place without operation. The prognosis, where there is a local peritonitis, is invariably good after an operation. In cases of well-established general peritonitis the prognosis is hopeless. Where the operation is done very early in severe cases with general peritonitis, the prognosis is fair.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Lipoma of the Tongue.

In the *New York Medical Record*, of September 23, 1893, Rosenstirn gives a *résumé* of the literature of this affection, and adds one case of his own. It was that of a man aged 31 years. He complained first of a tickling sensation on the right side of his tongue; later, examination revealed a tumor. Four months afterward he had on the base of his tongue a reddish-yellow tumor, the size of a large English walnut. There was also another on the left arm. The lingual tumor was removed without trouble by means of a snare. Another case described is that of a negro, aged 53, affected with multiple lipomata.

Supra-pubic Cystotomy.

In the *Lyon Médical*, November 12, 1893, Guillemot gives two cases in which he performed supra-pubic cystotomy for urinary retention. He advises the suturing of the vesical walls to the skin direct and the avoidance of including the muscular or fibrous tissues. By doing as he directs he claims that the tendency of the opening to contract is obviated and cicatricial stenosis avoided. On account of the inversion of the skin which occurs, the sutures are advised to be of catgut, which it is not necessary to remove, or of silver, the ends of which are to be left of sufficient length to allow of their being untwisted and so withdrawn. Local anesthesia by means of subcutaneous injection of cocaine was used in preference to a general anesthetic.

Surgical Treatment of Congenital Hydrocephalus.

Vautrin (*Gazette Hebdomadaire de Médecine et de Chirurgie*) advocates the puncture and drainage of the cerebral cavity in cases of congenital hydrocephalus. The patient he operated on was two months of age. The head measured 78 centimetres in circumference, 40 centimetres demi-circumference bi-auricular, and 39 centimetres antero-posterior. An incision was made in the parietal region 3 centimetres in front of the bi-auricular line. A stylet was introduced, which by an accidental movement escaped from the operator's hand and dropped into the cranial cavity. The finger was then introduced and the stylet removed by means of a long forceps. Four filaments of silkworm gut were introduced and the wound sutured shut. The head was bandaged, the dressing being renewed when it became loose. Notwithstanding some convulsions, the condition of the child was so much improved that the parents removed it to the country, returning every five days for rebandaging. After returning three times they stopped coming, and it was ascertained that after a dressing by the mother the threads came out, and the child died in coma forty days after the operation. The cerebrum was separated from the dura mater in this case a considerable distance, thus allowing the entrance of the stylet.

Nephrectomy for Ureteral Fistula.

Condamin (*Lyon Médical*, November 5, 1893) gives a case in which nephrectomy was performed for fistula of the ureter. This procedure is advised when the kidney also of the involved side is affected. The patient was a woman, aged 22 years, who had a uretero-vaginal fistula following an operation for pyosalpinx. The urine was discharged per vaginam. Some time after she was taken with a chill, swelling and pain in the loin, and pain along the course of the ureter with diminished secretion of urine. A lumbar nephrectomy was performed through an oblique incision, the vessels were controlled by forceps, which were allowed to remain on for sixty-four hours. The patient made a quick and satisfactory recovery.

Nephrotomy for Total Suppression of Urine.

In the *Lancet*, September 16, 1893, Fraser and Parkin report a case of anuria in which the kidney was incised, and the patient, aged 74, recovered. She had had previous attacks, which passed off, but this time she became drowsy, tongue furred, temperature normal, and pulse 84, full and strong. There was no twitching of muscles, or sickness, and no pain, except tenderness on deep pressure in the left loin. The bladder was quite empty, and anuria had lasted five days. It was decided to explore the left renal region. A mixture of ether and chloroform was administered, and the usual oblique incision made. The kidney was found to be dark colored, hard, and about eight inches in length. On incision six ounces of urine escaped, the last portion being mixed with pus. A flexible probe was passed down the ureter as far as the brim of the pelvis. No calculus could be detected. A drainage-tube was inserted in the pelvis and the wound closed. The amount of urine passed by the loin in twenty-four hours was estimated to be forty ounces. Subsequently the patient passed about two ounces of urine by the bladder. Two views are expressed as regards the possible cause for the obstruction, one being that the ureter may have been constricted by a band in the pelvis, the result of an old cellulitis, of which there were evidences, or that the kidney, being much enlarged and movable, might have become so displaced as to cause kinking of the ureter. The authors incline to this latter supposition.

Pylorectomy for Tumor of the Pylorus.

Pollosson (*Lyon Médical*, September, 1893) gives the details of a case on which he successfully performed pylorectomy. The patient was a man aged 32 years, and had only been suffering for four months with digestive troubles, which from the first presented the characteristics of pyloric obstruction. Food was vomited which was recognized as having been ingested fifteen days previously. His progressive emaciation demanded operation. This was done under ether, an incision being made from the xiphoid cartilage to the umbilicus. The tumor was felt in the pyloric region, and the pylorus drawn out of the wound without difficulty. An incision to the left of the pylorus gave access to the stomach cavity, and the tumor was found to be small and situated above and posteriorly. It felt like an indurated plaque. The epiploic appendages having been separated, one or two arterioles were secured, and a section made, first on the gastric and then the duodenal side of the growth, and the complete pyloric ring, eight centimetres in length, was removed. The two openings were closed by the fingers of an assistant. In order to make the gastric opening correspond in size to that of the duodenum,

the former was closed for six to seven centimetres with the Czerny-Lembert suture. This included the upper half of the section through the stomach. The duodenum and stomach were then joined on their posterior surfaces by two layers of sutures, the first sero-interstitial knotted on the side of the cavity, and the second mucoso-interstitial also knotted on the side of the cavity. The anterior walls were sutured by the Czerny-Lembert suture of one row sero-interstitial, and another sero-serous. The sutures were interrupted and placed two to three millimetres apart. The whole thickness, on account of the retraction of the muscles of the abdominal wall, was included in closing the wound. The operation consumed one and a quarter hours, and the recovery of the patient was perfect. He was kept on a diet of cracked ice for six days, and allowed to have milk, wine, and soup on the seventh. Sixteen days after the operation he left the hospital to take apartments in the city. The tumor was an epithelioma with colloid changes.

Extraction by Laparotomy from the Human Bladder of the Largest Stone ever Recorded as Successfully Removed.

Under the above title Herbert M. N. Milton, in the *Lancet*, September 16, 1893, records the removal of a stone weighing 995 grammes, or nearly thirty-four and a half ounces. He adopts the title with the object of settling the point as to whether it is really the largest so removed. He says the success may be criticised on account of the patient dying two and a half months after the operation, but points out that he had had a period of convalescence, and was operated on a second time for a new stone of renal formation. He also retained a urinary fistula. The stone was evidently so large that it was decided to open the peritoneum at the very first, and to take precautions against its infection. Stripping off the peritoneum from the bladder was found impossible, on account of the drag caused by the false ligaments. A longitudinal and two lateral incisions in the bladder were found necessary, and the stone was dislodged by pressure with two fingers in the rectum. The bladder was washed out with boracic solution, the peritoneum stitched with catgut, the bladder with silkworm gut, and the abdominal incision with silver wire. The bladder never regained its power of expulsion, and this necessitated the keeping open of a fistula. The patient had a second stone removed on the thirty-fifth day, and afterwards ate and slept well, and went into the garden, but later declined, and died two and a half months after the operation first performed. Both kidneys showed advanced nephritis apostomatosa. There were bilharzia worms.

Treatment of Flat-foot.

Clay (*Birmingham Medical Review*, June 1, 1893) gives his method of treating flat-foot. It embraces (1) massage with Lin. Saponis; (2) bathing with sea-salt; (3) exercises; (4) manipulation; (5) tenotomy; (6) use of special boots. Massage is of use in restoring the deficient circulation. Flat-feet are generally found to be cold and bathed in a clammy, unpleasant perspiration. Bathing and the use of sea-salt is also useful for the same purpose. As exercises, the following are advised: extension and flexion of the ankle, but especially adduction or inversion of the foot. Then three or four times a day patients should be instructed to walk bare-foot, on their toes, many times backward and forward across the room. This should be done deliberately, and care taken not to get the instep too vertical. Walking on the outside of the feet is also advised. The patient is

advised to take walks, the toes being kept quite in front, and fairly big strides taken. Manipulation is regarded as being of great service, especially when rigidity exists. On applying this for the first occasion an anesthetic is given, the foot suddenly wrenched, and forced back as much as possible into position. It is a great mistake to apply force gradually, as this only stretches the adhesions and contractions. The foot is then bandaged and fixed in the varus position by means of a pad and a malleable splint. On the third or fourth day they are removed, the foot worked, and the splint replaced. As soon as the pain subsides, the active exercises above mentioned are begun, the manipulation being practised weekly if required. In cases in which special boots are worn during the day, splints may be applied at night. Tenotomy of the extensor longus digitorum is almost always required; in others the tendo Achillis and peroneus brevis and tertius. It is never necessary to divide the long peroneal muscle, as it is of service in bracing up and increasing the concavity of the arch of the foot. The use of pads fixed to the inside of the sole of the shoe, and the raising of its inner edge, is also recommended, and operative procedures, such as those of Ogston, Stokes, and Lunds, are deprecated.

Appendicitis.

Gilbert Barling (*Birmingham Medical Review*, June, 1893) describes two cases, of which he says that, assuming, however, that these may have been examples of typhlitis, he is able to state that a careful search of some extent in current medical literature, and in post-mortem books of the General Hospital, has failed to furnish him with any other examples, and he knows of none which will support the retention of the term peri-typhlitis. He believes in the appendicular origin of these affections. Seventy cases were compiled from the records of a single hospital, with a mortality of about eleven per cent. These statistics are regarded as more reliable than those derived from mixed sources. Thirteen cases were operated on, and three others probably required it, making sixteen in all, yet it will be seen that those that recovered without operation outnumbered these by nearly four to one. The following indications for operation are given:

(1) Cases in which localized abscess can be diagnosed with something like certainty.

(2) Those in which, from the acuteness of the symptoms, perforation or gangrene of the appendix may be regarded as imminent, if it has not already occurred.

(3) Those in which prolonged rest, blistering, etc., fail to prevent relapse.

Some illustrative cases are then given.

[The tendency of the profession in this country is towards more frequent operations than is advocated by the author, a favorable outcome being expected in those cases operated on between the attacks, and an unfavorable one in those which have progressed so far as to render the operation of great urgency.—Ed.]

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Chloralose.

Ferrannini and Cassaretti (*Rif. Med.*, August 11, 1893) draw the following conclusions from their experimens with the drug: (1) Its action on animals may be stated as follows: First, a partial paralytic stage, in which the reflexes are exaggerated, then a paralytico-hypnotic stage, and, finally, if the dose is quite large, a paralytic and convulsive stage, ending in death. The state of the heart and blood-pressure is not altered save when the slowing of the respiration becomes very marked. (2) Chloralose appears to be a drug whose influence is exerted chiefly upon the cerebral cortex, inducing sleep, and lessened motility and general sensation. The exaggeration of the reflexes is due to stimulation of the corresponding nerve-centres rather than to a depression of the inhibitory centres.

The following conclusions are drawn from clinical experience: (1) Chloralose is a valuable hypnotic in the insomnia from over-excitement; it is preferable to chloral in the insomnia of heart-disease; it is more acceptable to the stomach than any other hypnotic; it acts extremely well in insomnia due to disorders of the digestive canal; it is inferior to morphine and similar hypnotics when sleeplessness is due to pain; it has no cumulative action; it acts equally well if given several nights in succession. (2) Without causing any intolerance chloralose is a certain hypnotic in doses of from two and a half to seven grains by the stomach; of three to seven grains by the rectum; of one to two grains hypodermically. The amount of tolerance by the circulatory and digestive systems is remarkable. If these doses be exceeded toxic symptoms may manifest themselves similar to those observed in animals. (3) If the above doses be insufficient, they may be cautiously increased, the effect of each dose of two grains being carefully noted. In no case, however, should the dose exceed twenty-four grains, either by the mouth or rectum. (4) In certain neuroses, such as chorea and hysteria, the drug may be successfully employed, in similar doses, as a nerve sedative.

The following summary embodies Maraglion's conclusions upon the effects of chloralose (*Les Nouveaux Rem.*, June 24, 1893): It generally produces quiet, refreshing sleep within half an hour of its administration. The reflexes are exaggerated. The heart, respiration, and temperature are unaffected by the drug in ordinary doses. The stomach is undisturbed. It causes some contraction of the peripheral vessels proportionate to somnifacient effect which it induces. It may be given in doses of two grains, cautiously increased. It has no cumulative effect.

Lang (*British Med. Journ.*, August 5, 1893) reports a case of poisoning by chloralose. The patient, a middle-aged lady, had taken at 1 A.M. seven grains of the drug made by Bain and Fournier, and an hour later three grains more of a preparation made by another firm. At 4.30 A.M. she presented the following symptoms: semi-coma, from which she could not be aroused to give an intelligent answer to questions; congestion of the face and cyanosis; equal and somewhat dilated pupils; breathing normal; pulse 60, regular, fairly full, and of high tension; skin warm and moist. The treatment consisted in washing out the stomach, and administering an enema of hot coffee. Recovery was prompt. As she had been in the habit of taking chloralose in similar doses, the outward effect may have been due to the rapid absorption from an empty stomach or to some impurity in the new brand.

WILLIAMS (*Practitioner*, February, 1894) reports another case of chloralose-poisoning, the details of which are as follows: A middle-aged lady, suffering with "spinal neuralgia" and "neurasthenia," who had been in the habit of taking chloralose, took ten grains of the drug at 11 o'clock in the evening. At 11.30 she became restless and excited, and at 1.30 in the morning developed maniacal delirium. She buried her head in the pillow in a condition of abject terror, continually crying out, "Oh, why did I die!" at intervals raising herself in the bed and looking wildly about her. She seemed conscious of the presence of others, but failed to recognize any one. Her pulse was unusually good. The pupils were unaffected. She forcibly resisted any attempt at restraint, especially when an attempt was made to give a hypodermic injection. She seemed quite sensitive to the prick of the needle. One-fourth of a grain of morphine, followed by one-sixth of a grain half an hour later, produced no effect. The excitement lasted until 4.30 A.M. After recovery she was entirely unconscious of all that had transpired during her delirium.

SUBGALLATE OF BISMUTH IN FERMENTATIVE DYSPEPSIA.

FLINT (*N. Y. Med. Journ.*, No. 776, 1893) states that he has obtained excellent results with bismuth subgallate in long-standing dyspepsia. He has been in the habit of prescribing the drug in capsules containing five grains each, but of late he has given it in the form of tablets, which are more convenient and seem to act more favorably. One capsule or tablet is given before or after each meal. He refers especially to four cases in which the duration of the dyspepsia was eleven, six, four, and three years respectively. In all cases the distress and flatulence promptly disappeared.

LARGE DOSES OF IODIDE OF POTASSIUM IN CHRONIC TABES.

WERNER STARK (*Neurol. Centralbl.*, June 15, 1893) records the case of a woman, aged 43, who had had syphilis thirteen years previously, and who had been the subject of locomotor ataxia for five years. She could no longer walk, was pale and emaciated, the legs presented marked ataxia, analgesia, and, in places, anesthesia of the skin covering them, and weakness and atrophy of their muscles. The knee-jerks were absent. The patient had been previously treated with iodide, but only in small doses. Stark gave a tablespoonful of a 50 to 400 watery solution three times a day to begin with. After a time the strength of the solution was increased to 60 to 400; after three months it was made 75 to 400, and three months later 100 to 400, four tablaspoonfuls of this strongest solution being given every day for four months. Improvement commenced after the first increase in the strength of the solution, and by the time that the patient was taking the maximum dose of 12 grains per diem, anesthesia and ataxia had disappeared, the muscular atrophy had improved, and the patient could walk, with support, without difficulty. The iodide was discontinued for intervals of weeks from time to time, and during the last or third year it has only been given now and then.

TREATMENT OF EPILEPSY.

FLECHSIG (*Neurol. Centralbl.*, No. 7, 1893) describes a new method of treat, ing epilepsy which he has found to be more efficient than the methods in common use. He gives opium in increasing doses for about six weeks, then discontinues it, and follows with bromide in large doses—two drachms daily—for two or three

months, and then gradually lessens the amount to three grains daily. In the majority of cases this treatment ceased when the bromide was begun; it must be said, however, that the observations were not extended over many cases nor for any great length of time.

STEIN (*Ibid.*, October 1, 1893) has also used this method in several cases, and especially refers to six. In three the fits stopped shortly after beginning the bromide treatment, and the patient then passed from under observation. Two patients had no convulsions from the time at which the bromide was begun until the report was made,—a period of about two and a half months. The last of six cases was in a boy in which the cessation lasted but for a few weeks. Before the administration of the opium he was intolerant of bromide, but after this treatment he could take eighty grains daily. Stein is inclined to think favorably of this treatment, and recommends it especially in children.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D.,
FRANK W. TALLEY, M.D.

GALACTOPHORITIS.

BOISSARD (*Semaine Médical*, October 11, 1893) draws a distinction between galactophoritis, which is an inflammation of the mammary ducts and acini, and lymphangitis which attacks the connective tissue around the gland. Frequently the two forms are mixed, and some of the worst cases of fistulous tracks and frequent repetitions of acute inflammation are the result. Galactophoritis uncomplicated may arise from a very slight abrasion near the orifice of a duct, or it is possible that it may follow the entrance of streptococci or staphylococci into a healthy duct. The disease causes but little pain, slight feverishness, is seldom ushered in with rigors, and is attended with the discharge of free pus from the nipple. Milk containing pus, as compared with pure milk, is of a grayer or greener hue and is not so quickly absorbed by wool kept against the nipple. It does not freely trickle from the nipple, but tends to clot around the part, being less fluid than pure milk. The child invariably suffers, rapidly losing weight, and developing diarrhea with green-colored stools. Death is almost certain. Boissard insists upon immediate cessation of lactation from the affected breast, or, when both glands are affected, altogether. He recommends that the patient be anesthetized and pressure applied to the breast until every drop of pus is squeezed out. The pressure is applied from circumference to centre. When no more of the pus-charged milk escapes, the nipple and breast must be freely sprayed for half an hour with a solution of bichloride of mercury or naphthol. Then a compress must be applied and kept on until the next manipulations. Only three or four applications of this method are needed, and the disease is eradicated in a week. Any mere palliative treatment will certainly kill the child and place the mother in great danger of suppuration of the breast.

Monstrous Fetus.

Rousseau (*Annales de Gynécologie et d'Obstétrique*, August, 1893) described in full a monstrous fetus. It was a monosomian or single-bodied monster, with duplicity above. There were two sets of cranial bones with a single face. The parents were not relations. The maternal grandfather was a drunkard, but there was no other indication of any hereditary taint. The mother was a multipara. The period of gestation passed normally. The labor continued over twenty-four hours and no progress was made. Rousseau, in exploring, brought away a large eye on the tip of his finger. It was the size of a nut, oval, and upon examination was found to bear two corneæ and two irides, absolutely distinct. As the fetus was evidently monstrous and doomed to die, Rousseau perforated the cranium, permitting the escape of a great quantity of cerebral matter and fluid. The forceps was then applied and the fetus delivered with ease. Rousseau, who dissected it, classes it as a new variety, craniodidymus.

A Case of Difficult Labor Occasioned by an Enormous Distention of the Fetal Bladder.

Schwyzer (*Archiv für Gynäcologie*, Bd. xliii, p. 333) describes a case of difficult labor occasioned by great distention of the urinary bladder of the child, which occurred in the Türicher Frauenklinik, and refers to thirteen similar in the literature. In Schwyzer's case labor could not take place spontaneously, from great distention of the abdomen. The head entered the pelvic canal and then ceased to descend. Upon traction with the forceps the head was torn off. The abdomen was then punctured and six litres of fluid drawn off, when the body was borne with ease. From the reported cases the following is noted: The heart-sounds are very indistinct or not at all to be heard; usually there is an absence of the rectum, the colon opens into the bladder, the urethra is closed, and the ureters and pelvis of the kidney are dilated; in female children there may be a dilatation of Muller's ducts, *i.e.*, the uterus and tubes, with urine.

The Treatment of Uterine Inertia without Drugs or Tonics.

Van Waters (*New York Medical Journal*, June 24, 1893) remarks that the beneficial action of a suppository in the rectum in constipation is widely known. He asks: Why should not the same good result follow the use of a suppository in uterine inertia, and what more ready and effective suppository could we have than the hand? Hence, when the case has so far progressed that we are satisfied it is time for delivery to take place and yet inertia has supervened, the hands should be rendered thoroughly aseptic by the use of water, soap and a brush, and afterward immersion in a creolin solution. Then, after the administration of a little chloroform, the hand, well anointed with vaseline, should be gradually and slowly introduced into the vagina. As soon as it has remained there a few minutes pains will commence and increase in severity, in some cases to such an extent that the hand has to be withdrawn. In those cases in which Van Waters has resorted to this procedure the results have been most gratifying.

Uncontrollable Umbilical Hemorrhage in an Infant.

Elmer Keiser (*New York Medical Record*, September 30, 1893) delivered recently the wife of a laborer of a healthy female child. There was no family

history of syphilis or hemophilia, but the parents lived near a malarial swamp. On the fifth day the cord became detached, and by the eighth the umbilicus was clean and dry. On the twelfth day a profuse hemorrhage occurred. Keiser gave ergot internally and tried vinegar, tannic acid, cold and hot water, and compression, which all proved unavailing. The umbilicus was then completely closed by means of sutures, a very fine needle being used for the purpose. Nevertheless, the blood flowed nearly as freely as before, issuing partly from the track of the sutures. Two ligatures were deeply inserted at right angles to each other and firmly tied. Yet the bleeding continued. Styptics and compression were again tried, but proved ineffectual. The child died about ten hours after the bleeding had first been noticed. It was noticed that the blood showed no tendency to coagulate.

GYNECOLOGY.

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D., AND CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D., AND H. D. BEYEA, M.D.

The Ligation of the Vasa Uterina in Myoma of the Uterus.

Gottschalk (*Centralblatt für Gynäkologie*, No. 39, 1893), prompted by the communication of Küstner, in No. 33 of the same journal, relates his observations in the treatment of uterine myoma by means of ligation of the uterine vessels. His technique is like that of Küstner, in that he lays the vessels bare, as in vaginal hysterectomy. Until now he has provisionally separated the bladder from the uterus, in order to gain operating room, but believes the procedure unnecessary. Under the guidance of the index finger, with three buried silk ligatures, one above the other, he completely ligates the uterine vessels, including the lower third of the broad ligament. He uses buried silk ligatures, with the aim of causing a strong cicatrix, and thereby strengthening the cardinal ligaments. The vaginal wound is closed with interrupted catgut sutures. He has observed seven cases, two of which, where the tumor was as large as a fist, were operated upon last July, and, although symptoms have disappeared, it cannot be said they are cured. The remaining five cases have been operated upon from four months to one and three-quarters of a year, the tumor in each case being about the size of an apple. In two instances the result is surely positive, since the tumors and all symptoms have entirely disappeared. In the other three cases the myoma and uterus have undergone distinct atrophy. The operation in two cases was immediately followed by the menopause, and, therefore, Gottschalk believes this operation should be done instead of hysterectomy in climacteric hemorrhage. He advises the removal of the uterine mucous membrane preceding operation, as it is always diseased in myoma of the uterus. An abstract of Küstner's communication on this subject may be seen in the last number of this magazine.

A Mural Dermoid Cyst of the Uterus.

W. W. Stewart (*Medical Record*, November 18, 1893) reports a case of this nature. The development of dermoid cysts, while possible in almost any part of the body, is exceedingly rare in the uterus. When in the pelvis they are most frequently found in the ovary. The patient in whom this tumor developed was 31 years old; brunette, five feet three inches in height; weight, when in health, 136 pounds; married ten years; four children. Her labors were normal and easy, and the dysmenorrhea, which had existed prior to marriage, disappeared after the birth of her first child. Six months before operation she had what was considered to be an attack of "typhoid fever," lasting ten weeks, and leaving her much prostrated. Her symptoms assumed a septic type after this, and she began to notice an enlargement of the abdomen, which was mistaken for pregnancy. Uterine hemorrhage occurred at intervals of four weeks, after this for four months, and rhythmical pains in the region of the uterus caused her to fear an abortion. During this time there was also observed a soft spot below the umbilicus, which was incised about four months after its detection, and there escaped a large quantity of "foul-smelling pus mixed with white flocculi, resembling closely vernix caseosa." Upon examination through the abdominal walls alone the tumor seemed exactly like a pregnant uterus, but by vaginal examination it was found that there was a tumor in the wall of the uterus. The cervix uteri was drawn upward and backward, resting in median line, normal in consistency and size. Uterus could not be isolated from the abdominal tumor, which was about the size of a man's head, and adherent to the belly wall in median line. Cul-de-sac of Douglas empty. Laterally, structure seemed to be in normal condition. Abdominal walls were tense, not permitting tubes or ovaries to be made out. Uterine contractions were detected by bimanual palpation. After cutting through the abdominal wall and incising the peritoneum, the dark-reddish surface of the tumor (the distended uterus) was brought into view. This was stitched to the abdominal wall and incised, and discharged about a quart of offensive, purulent material. In the sac of this tumor was found a mass of matted hair in balls, with long wisps connecting them, also three teeth were found embedded in the left wall of the cavity. The sac was irrigated with boiling water and packed with iodoform gauze. Two days later the sac was washed with peroxide of hydrogen and again filled with gauze. Daily dressings followed this for six days, and the sac gradually contracted, and the patient made a very satisfactory recovery.

Hysterectomy for Cancer of the Cervix by Combined Abdominal and Vaginal Dissection.

Maurice H. Richardson (*Boston Medical and Surgical Journal*, November, 1893) considers this subject from the stand-point of an anatomist and general surgeon. The liability to recurrence after operation in cancer of the cervix depends upon the local malignancy of the uterine growth and upon the tendency towards secondary infiltration of the broad ligaments. An analogy is drawn between cancer of the cervix and cancer of the breast, and it is stated that, if the invasion of the broad ligaments was as frequent in cancer of the cervix as the involvement of the axillary glands in cancer of the breast, any radical or dangerous operation upon the uterus would be unjustifiable. It is to be deplored that malignant disease of the uterus is not, as a rule, recognized early in its career, and that, from the vagueness of the symptoms, the frequent absence of pain, and the desire for concealment, the trouble is allowed to advance until extensive necrotic changes occur,

accompanied by offensive and bloody discharges. "Cancer of the cervix may extend in all directions and invade the vaginal mucous membrane and the important structures lying in close relation with it. In fact the epithelial infiltration must be very circumscribed not to involve also, in a hopeless entanglement, the bladder wall, the rectum, or the ureters; yet the disease is occasionally limited to the internal layers of the cervix, or to the body of the womb, without appearing in the peri-uterine structures at all. But, unfortunately, cancer seldom confines itself in this manner; we must expect the contrary in most instances, and find the disease spreading in all directions in hard and ulcerating masses. From clinical and pathological considerations it follows that cases of cervical cancer favorable for extirpation and permanent cure are rare, that operations for relief have decided limitations, and that at the best the outlook is gloomy." Pursuing the analogy between cancer of the lip and cancer of the cervix, it is remarked that, while both seem at first to have only a local malignancy, yet both, when well under way, have a rapidity of growth and an area of metastases that are wonderful.

In cancer of the lip a considerable area of tissue may become involved before it is impossible to completely remove the growth, while in disease of the cervix a peri-cervical extension of much less than an inch renders cure by excision absolutely hopeless. A consideration of the anatomical relations of the various pelvic structures follows, and it is stated that in the intimate relations between the cervix and the ureters, we find our most discouraging facts, both as regards prognosis and technique.

This close relationship between the ureters and cervix is claimed to be a great drawback to vaginal hysterectomy, as it is necessary to hug the cervix closely to avoid wounding them, and it is usually advisable to remove as much tissue as possible adjacent to the cervix on account of the liability of infiltration into these structures. There is also another danger from vaginal hysterectomy, viz., hemorrhage. The chief advantage of this method of operating lies in the direction of drainage. The supra-pubic operation, with the patient in Trendelenberg's position, gives the best opportunity for carefully examining the parts, and enables us to recognize a hopeless metastasis, to determine the condition of the broad ligaments, to locate the ureters, and to dissect with precision. As the vaginal attachments of the cervix are approached it is difficult to detect the limits of the disease, and it is for this reason that it is better to rely upon a combined vaginal and abdominal operation.

The author advises the thorough cleansing of the vagina and cervix, and then a clean incision of the vaginal wall, thus separating the cervix from the vagina by as broad a margin as possible, without wounding bladder, ureters or rectum. The incision goes only into the cellular tissue, and not through the peritoneum, and the separation is carried on by fingers or some blunt instrument. After this is done the hands must be well cleansed, and with other instruments the abdominal operation performed. The superiority of the combined method is seen:

(1) In the intelligent and thorough dissection, both of the local disease and of the broad ligaments.

(2) In the certainty with which hemorrhage may be prevented.

(3) In the protecting of the ureters.

(4) In the saving of time.

This method is specially applicable to cases in which the cervix and a portion of the vaginal mucous membrane are involved, and when the uterus is adherent or quite large. The author has had no complications of any kind following this method of operating.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

A New Method of Staining Spores.

Rufino Fiocca (*Centralbl. für Bakt. u. Parasitenk.*, Band xiv, No. 1, July 1, 1893) calls attention to the fact that the methods for staining spores heretofore given are all very tedious in performance or require numerous chemical reagents. He suggests the following method as simple and very efficient. Only four reagents are required, including a 20-per-cent. sulphuric or nitric acid solution for decolorization and a watery solution of a contrast stain.

About twenty centimetres of the ammonium solution are poured into a watch-glass, and ten to twenty drops of the alcoholic dye added. This is warmed until volatilization occurs, and the cover-glass dipped in. The staining takes from three to five minutes. After staining, the preparation is shaken for a moment in the acid solution, washed thoroughly in water and then stained for contrast. Sometimes, when anthrax spores are to be stained deeply, ten minutes' immersion in the warm stain is required.

Fiocca has found gentian-violet, fuchsin, methyl-blue and safranin best adapted to the staining of the spores, while vesuvin, chrysoidin and methyl-blue or malachite-green are best for counter-staining.

The chief point in favor of the method given is that the pictures obtained are always clear and sharp, with no incrustation of dye, as so often happens by other methods.

The Eclampsia Bacillus and its Relation to Puerperal Eclampsia.

Gerdes (*Deutsche med. Wochenschrift*, xviii, p. 603) succeeded in cultivating, from the serous contents of the abdomen, pleuræ and sub-dural spaces, as well as from the liver, kidneys, spleen, lung and aorta blood of a patient dead of puerperal eclampsia, a peculiar and characteristic bacillus. The colonies appeared as little points in twenty-four hours. Microscopic examination of the organs mentioned showed immense numbers of the bacilli. Experiment proved the bacilli infectious.

The author is of the opinion that the decidua is the primary seat of infection. The conclusions reached by him are as follows:

(1) The eclampsia bacillus is the only cause of eclampsia and is not found in any other disesse. There is no eclampsia without bacilli. The infection takes place from the uterus, probably from an endometritis which existed before the time of conception.

(2) The convulsions which take place from other causes at the time of birth must be most carefully separated from eclampsia, and are shown by post-mortem examination to be entirely different.

(3) Eclampsia is a very distinct and characteristic disease.

(4) The severe changes which the organs of eclampsic patients suffer cannot be explained on the ground of the demonstration of the specific micro-organisms. Probably they are the direct or indirect result of the toxines of the eclampsia bacillus.

Concerning a Coccidium and Sporocyst found in Myxo-carcinoma.

E. Burchardt (*Archiv f. Path. Anat., etc.*, Bd. cxxxi, 1893, Heft 1) found in a myxo-carcinoma of the ovary, together with the intra-cellular parasitic forms of other authors, a somewhat similar body surrounded by a distinct capsule, and, according to his opinion, unquestionably a coccidium. He observed, only once, however, a thick-walled, round, intra-cellular cyst which contained a thin-walled vesicle, which, in turn, seemed to enclose a relatively thick-walled cyst. In this inmost cyst were what appeared at the first glance to be grape-like bodies, *i. e.*, five distinct round masses. Burchardt considers this to be the sporocyst enclosing the embryo. No proof that the body is a coccidium is offered, and Schuberg, who reviews the article in the *Centralb. f. Bakt. u. Parasitenk.*, Bd. xiv, Nos. 4 and 5, 1893, takes exceptions to the conclusions drawn by the observer, as the bodies described are very different from other coccidia. The reviewer closes with the declaration that, "taking all things together, this communication upon the parasitic nature of the cellular enclosures of carcinoma does not in the least serve to solve the difficult problem of their being."

Further Researches upon the Parasitic Protozoa in Cancerous Tumors.

Ruffer and Plimmer (*Journal of Pathology and Bacteriology*, October, 1893, Vol. ii, No. 1) continue the description of the parasites found by them in carcinomatous tumors, the important additions to their former observations being as follows:

"The parasite of cancer, according to our observations, either divides into two or into multiples of two, the simple division into two parts being the more frequent form of multiplication. In such cases the nucleus of the parasite elongates a little so as to become somewhat oval in shape. The nucleus then divides into two absolutely equal parts, a fissure making its appearance exactly in the centre and gradually deepening. The two nuclei thus formed then gradually separate, though they remain connected for a long time by very fine, delicate and somewhat granular threads.

"The capsule of the parasite shows no changes at first, and the time at which it undergoes division appears to vary somewhat even in the same cancer. As a rule, however, it begins to divide when the two nuclei are separated from each other but are still connected by the threads above mentioned. A septum is gradually formed by a prolongation thrown out from either side of the capsule until the two prolongations meet, but even at that time, when the septum is formed, the threads connecting the two nuclei are still plainly seen. In a later stage the threads disappear; the two parasites lie with their inner parts flattened against one another, then gradually become rounded off; finally, they separate as two young parasites. It is not rare to see in some of the cells several parasites undergoing division at one and the same time, and in this way a cell may include a large number of small parasites.

"This form of division of the parasite is most common, and may be observed in every cancer of the breast; but sometimes instead of dividing into two it subdivides into four, six, eight, sixteen or as many as thirty-two young parasites."

The observers were never able to find a sporocyst, and, although they have diligently sought in each one of the fifty cancers of the breast studied by them for crescentic spores or falciform bodies, they have not been able to find them.

INOCULATION OF COWS WITH BACILLUS DIPHTHERIÆ.

A. C. ABBOTT (*Journal of Pathology and Bacteriology*, Vol. II, No. 1, October, 1893) reviews the work of Klein, who, suspecting that certain epidemics of diphtheria were due to bacilli distributed through the milk of infected cows, inoculated some cows and studied the disease as produced. In Klein's experiments neither of the animals had rise of temperature. Between the fifth and eleventh days a papulo-vesicular eruption occurred upon the udders, becoming pustular in ten days and subsequently covered by a brown scab. Post-mortem examination of the animals revealed, at the seat of inoculation, a dense mass, which, with the subcutaneous and muscular tissues, formed a peculiar circumscribed, freely movable tumor. Bacteriological examination of the tumor, of the eruption and of the milk, when the eruption first appeared, showed the presence of large numbers of diphtheria bacilli.

In repeating these experiments different results, expressed as follows, were obtained:

"The results of our experiments have differed from those of Klein in several essential points. We have failed to obtain cultures from the seat of inoculation of either of our cows at autopsy. In one case the animal died sixteen days after inoculation, and in the other she was killed on the twentieth day after the experiment was begun. In both cases microscopic examination of the tissues revealed the presence of the *B. diphtheriæ* in relatively large numbers.

"In neither of the two cases operated upon by us did an eruption appear on the udder or teats. Careful watch was kept, but at no time during the experiments could anything abnormal be detected upon this organ.

"We have subjected the milk from both cows to careful and prolonged study, and have failed in both cases to detect *B. diphtheriæ* in it.

"The pathological appearances in the internal organs noted by Klein were not looked for in case No. 1, for the reason given; but in case No. 2 there was no trace of disease of any character in either the lungs, the pleura, or the serous surfaces of the heart.

"From the description of the seat of inoculation in the cows experimented upon by Klein, we cannot say whether the pathological lesions found by us were similar to those obtained by him or not. In neither case have we found at the seat of inoculation bacilli sufficiently peculiar in their morphology to justify us in likening them to the germinating hyphon of mycelial fungi, but we did find in cow No. 1 bacilli the morphology of which was strikingly like the long, irregular forms of the organism that predominate where it is grown upon Söffled's blood-serum mixture. In cow No. 2 the majority of the bacilli were short and irregular in outline, presenting nothing peculiar in appearance."

MISCELLANEOUS.

THE SAMUEL D. GROSS PRIZE.

THE quinquennial prize of $1000 under the will of the late Samuel D. Gross, M.D., will be awarded January 1, 1895.

The conditions annexed by the testator are that the prize "shall be awarded every five years to the writer of the best original essay, not

exceeding 150 printed pages, octavo, in length, illustrative of some subject in surgical pathology or surgical practice, founded upon original investigations, the candidates for the prize to be American citizens."

It is expressly stipulated that the successful competitor, who receives the prize, shall publish his essay in book form, and that he shall deposit one copy of the work in the Samuel D. Gross Library of the Philadelphia Academy of Surgery.

The essays, which must be written by a single author in the English language, should be sent to Dr. J. Ewing Mears, 1429 Walnut Street, Philadelphia, before January 1, 1895.

Each essay must be distinguished by a motto, and accompanied by a sealed envelope bearing the same motto, and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

The committee will return the unsuccessful essays if reclaimed by their respective writers or their agents within one year.

The committee reserves the right to make no award if the essays submitted are not considered worthy of the prize.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

THE College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1894, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the secretary of the College on or before May 1, 1894.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within it the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award.

CHARLES W. DULLES,
Secretary.

LECTURES BY DR. DA COSTA.

DR. J. M. DA COSTA will deliver a lecture, on Weak Heart, in the Medical Department of the University on Thursday, March 1, at 5.30 P.M. On the following Tuesday (March 6), at the same hour, he will lecture on Lithemia.

EXAMINATIONS FOR POSITIONS ON THE MEDICAL CORPS OF THE U. S. ARMY.

AN Army Medical Board will be in session at Washington City, D.C., during April, 1894, for the examination of candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the board will make application to the Secretary of War, before March 15, 1894, for the necessary invitation, giving the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal acquaintance, from at least two reputable persons, as to his citizenship, character, and habits. The candidate must be between 22 and 28 years of age, and a graduate from a Regular Medical College, as evidence of which his diploma must be submitted to the board.

Successful candidates at the coming examination will be given a course of instruction at the next session of the Army Medical School, beginning in November, 1894.

Further information regarding the examinations may be obtained by addressing the Surgeon General, United States Army, Washington, D.C.

GEO. M. STERNBERG,
Surgeon General, United States Army.

BOOK NOTICES.

A Practical Treatise on Medical Diagnosis, for Students and Physicians. By John H. Musser, M.D., Assistant Professor of Clinical Medicine in the University of Pennsylvania; Physician to the Philadelphia and Presbyterian Hospitals; Consulting Physician to the Women's Hospital of Philadelphia and to the West Philadelphia Hospital for Women; Fellow of the College of Physicians of Philadelphia; Member of the Association of American Physicians; President of the Pathological Society of Philadelphia, etc. Illustrated with 162 wood-cuts and 2 colored plates. Philadelphia: Lea Brothers & Co., 1894.

The appearance of a text-book devoted to medical diagnosis should, of itself, be a matter of interest, for this field of medical literature has been less traversed, perhaps, than any other; moreover, this book has a special claim to our attention since its author is so well known as an experienced teacher and practitioner. We are familiar with but two or three able treatises on diagnosis in English, and these have scarcely kept pace with the advances which modern pathological research has furthered in this department of medicine.

The subject-matter in the present volume is divided into two parts; Part I dealing with general diagnosis, and Part II with special diagnosis. The aim of the author has been to make the work eminently practical, and for this reason, no attempt has been made at pathological classification, but the reader is led step by step through general semeiology to special semeiology, and finally to the hidden pathological causes of disease.

In Part I are discussed the data obtained by inquiry and the data obtained by observation; the first includes a brief reference to the assistance which history, family and personal, may furnish in diagnosis, and a consideration of various subjective symptoms, such as exhilaration, prostration, paresthesia, pain, and the like; and the latter deals with (1) the attitude, gait, skin, temperature, general musculature, general abdominal vital conditions, fits, collapse, shock, and the local examination of the external parts; (2) the examination of various exudations, transudations, and cystic fluids, obtained by puncture or aspiration; and (3) morbid processes and their symptomatology,—disturbances of circulation, disturbances of nutrition, and anomalies of growth. This arrangement of the work must certainly commend itself to every one, for in diagnosis a thorough analysis must always precede synthesis. The chapter on fever is excellent and deals comprehensively with the various phases of this important symptom and their diagnostic significance.

In Part II, under the head of special diagnosis, the author treats of diseases of the nose and larynx; lungs and pleuræ; heat, blood-

vessels, and mediastinum; mouth, fauces, pharynx, and esophagus; stomach, intestines, and peritoneum; liver, spleen and pancreas, kidneys; blood and ductless glands; constitutional diseases, infectious diseases, and diseases of the nervous system.

Dr. Musser has succeeded in bringing together a large and valuable collection of clinical data drawn from his own extended experience and from exhaustive literary research, and has presented them in an unusually clear and concise manner.

The chapters on thoracic disease merit special attention. In the article dealing with percussion the relation of pitch to dulness and tympany is not so clear as one would desire. A notable departure from general teaching will be observed on page 357, where four sounds of the heart are described,—mitral, tricuspid, aortic, and pulmonary. The mitral first or systolic sound is described as being heard loudest at the apex, inward to the parasternal line, upward to the third interspace; and the tricuspid first or systolic sound as being heard loudest at the lower part of the sternum and towards the left of the parasternal as high as the third rib. The chapter on diseases of the stomach is particularly instructive, and embodies all the latest acquisitions to our knowledge of the symptomatology of these disorders. In brief, the book is thoroughly modern, readable, and instructive, and, we believe, superior to any work of the kind now before the profession.

THE DISPENSATORY OF THE UNITED STATES. By DR. GEORGE B. WOOD and DR. FRANKLIN BACHE. Seventeenth Edition. Thoroughly revised and largely rewritten. With illustrations. By H. C. WOOD, M.D., LL.D., Professor of Materia Medica and Therapeutics and of Diseases of the Nervous System in the University of Pennsylvania, President of the Convention of 1890 for the Revision of the Pharmacopeia of the United States, Member of the National Academy of Science; JOSEPH P. REMINGTON, Ph.M., F.C.S., Professor of the Theory and Practice of Pharmacy in the Philadelphia College of Pharmacy, First Vice-Chairman of the Committee of Revision and Publication of the Pharmacopeia of the United States of America; and SAMUEL P. SADTLER, Ph.D., F.C.S., Professor of Chemistry in the Philadelphia College of Pharmacy. Philadelphia: J. B. Lippincott Company, 1894.

The present edition of this excellent work was rendered necessary by the numerous changes made in the last revision of the United States Pharmacopeia. The salient features of previous editions which have given so much satisfaction have naturally been retained, but much new material has been introduced, and in many instances titles and strengths have been changed.

The work is divided into three parts: Part I contains the discussion of all remedies recognized by either the United States or British Pharmacopeia. In Part II, Section 1, is introduced the national form-

ulary of unofficial preparations adopted by the American Pharmaceutical Association, and containing the formulas of many well-known and largely-used preparations; and in Section 2, of the same part, are considered drugs and preparations which are not official; the latter, as heretofore, having been classed by themselves, and printed in smaller type than that used for official substances. An important change observed in this part is the introduction of double columns, an improvement especially commendable on account of the increased width of the page. Part III deals with the Tests and Test-solutions of the two pharmacopeias, Weights and Measures, the Art of Prescribing Medicines, and other cognate miscellaneous matters. A short glossary, containing succinct definitions of the terms used to describe the action of remedies, is also included.

The drugs are arranged in alphabetical order, a classification very desirable in a work of reference. Each article includes a description of the remedy, its preparation, its impurities and adulterations, and its medical properties and uses. Throughout the book will be found abundant references, so that more extended information than is permitted by the scope of the present volume can readily be obtained. The seventeenth edition of this dispensatory fully sustains the reputation of its predecessors, and the authors are to be congratulated on the success of this work, and deserve the thanks of physicians and pharmacists for having rendered easy access to much valuable information that can be obtained neither from the pharmacopeias nor the standard text-books on materia medica and therapeutics.

A Dictionary of Medical Science. By Robley Dunglison, M.D., LL.D., Late Professor of Institutes of Medicine and Medical Jurisprudence in the Jefferson Medical College of Philadelphia, etc. Twenty-first Edition, thoroughly revised and greatly enlarged, with the pronunciation, accentuation, and derivation of the terms, by Richard J. Dunglison, A.M., M.D. Philadelphia: Lea Brothers & Co., 1893.

Dunglison's dictionary needs no introduction to the medical profession; for nearly two generations it has been recognized as a standard among English-speaking peoples in matters of medical terminology. While none of the features contributing to the success of former editions have been changed, many improvements have been made in the present edition, and enough new material added to keep it in the front rank of medical lexicons. Although more than forty-four thousand new subjects have been added, the omission of obsolete terms and the enlargement of the page have enabled the author to include the whole within the limits of a volume convenient to the hand. Pronunciation is for the first time introduced in the work and is indicated by the phonetic system. In the matter of spelling we note that diphthongs, the final *al* in such adjectives as *biological*, and the final *e* in such words as *quinine* have been retained. The definitions are unusually clear and concise. In brief, the book is wholly satisfactory and will doubtless be accorded the same cordial welcome that attended the appearance of its predecessors.

CHIRURGIE DES VOIES URINAIRES. Etudes Cliniques. Par le Dr. E. LOUMEAU. 2me edition. Bordeaux: Feret & Fils, 1894.

This volume consists of a series of clinical observations, compiled in the order in which the cases presented rather than in a systematic manner. Many of the observations are repetitions of experiences familiar to every genito-urinary surgeon. Some of the cases described are unique. One of these details a urethral calculus weighing twenty-one grammes. We note that the treatment of catarrhal cystitis by injections of corrosive sublimate 1 : 4000 is highly recommended, and some cases are reported. Seven cases of hydrocele are reported, which the author attributes to stricture of the urethra. Considerable space has been devoted to the surgical treatment of each individual case. The histories are in many instances very full; perhaps occasionally unnecessarily so. The book is instructive in showing the particular treatment favored by the author.

AN AMERICAN TEXT-BOOK OF GYNECOLOGY, MEDICAL AND SURGICAL, FOR PRACTITIONERS AND STUDENTS. By HENRY T. BYFORD, M.D., J. M. BALDY, M.D., EDWIN B. CRAIGIN, M.D., J. H. ETHERIDGE, M.D., WILLIAM GOODELL, M.D., HOWARD A. KELLY, M.D., FLORIAN KRUG, M.D., E. E. MONTGOMERY, M.D., WILLIAM R. PRYOR, M.D., and GEORGE M. TUTTLE, M.D. Edited by J. M. BALDY, M.D. With 360 illustrations in text and thirty-seven colored and half-tone plates. Philadelphia: W. B. Saunders, 925 Walnut Street, 1894.

In no department of medicine has there been so frequent and important changes and modifications in the technique and mode of operating as in that of gynecology. As a result, the opening of the peritoneal cavity, which a dozen years ago was an operation restricted to the relief of serious conditions and performed with dread from its large mortality, may now be advocated for the correction of malpositions of the uterus! With the present perfection of operative technique, the mortality of simple celiotomy is practically nil. These rapid changes have required a constant revision of the text-books upon the subject, and, indeed, the teaching of yesterday cannot be accepted as the teaching of to-day.

This entertainingly written book, which we have had the opportunity to carefully read, is a faithful representative of the present standing of gynecology. It is the product of the united efforts of ten representative American teachers and operators. There have been very wisely omitted from the book all lengthy descriptions of the anatomy and pathological histology of the parts under consideration, while the methods of treatment of the diseases of the genital organs, as well as the technique of operations and the after-treatment of the patients have been described in detail. Especially well considered are the chapters on pelvic inflammatory diseases and malignancy. In the former, the subject has been cleared of many of the old conflicting views, and is

considered in a new and rational pathology. The diagnosis and treatment of the various diseased conditions have been carefully and thoroughly discussed.

The book is well printed, profusely illustrated, and provided with a carefully prepared index. Many of the cuts of specula and instruments for examination might well have been omitted, and there is room for improvement in the printing of the colored plates. We feel, however, that the book merits and will receive a large circulation among the students and practitioners of medicine.

ANATOMY: DESCRIPTIVE AND SURGICAL. By HENRY GRAY, F.R.S., Fellow of the Royal College of Surgeons; Lecturer on Anatomy at St. George's Hospital Medical School. Drawings by H. V. Carter, M.D., with additional drawings in late additions. A new American from the Thirteenth English Edition. Edited by T. Pickering Pick. Philadelphia: Lea Brothers & Co., 1893.

For nearly forty years Gray's Anatomy has been the recognized text-book used by the great majority of English-speaking students of medicine. The careful scrutiny to which it has been subjected in this time and the successive issues of thirteen editions have made it what it is to-day, the most perfect work of its kind extant. In the present volume the text has been thoroughly revised, a few unimportant changes made in the typography, and a number of excellent engravings added to the series of illustrations which have contributed so much to the usefulness of previous editions.

SYLLABUS OF LECTURES ON THE PRACTICE OF SURGERY, arranged in conformity with the American Text-book of Surgery. By N. SENN, M.D., PH.D., LL.D., Professor of the Practice of Surgery and Clinical Surgery in Rush Medical College, etc., etc. Philadelphia: W. B. Saunders, 1894.

This work, as the title indicates, is a syllabus of, or, perhaps more accurately, a scheme for lectures on surgery. It presupposes, naturally, a knowledge of the subject. It is of especial use to those who are arranging a course of lectures in presenting the subject in a systematic manner. It will also assist the student in classifying and fixing the knowledge he has acquired in the lecture, in the clinic, and from his text-book. It is a skeleton about which the details are to be hung. One's memory thus may be frequently refreshed, without the necessity of rereading the entire details.

The work follows the "American Text-book of Surgery," which has already attained a most gratifying success, and which is to-day the leading American surgery.

Dr. Senn's name is a sufficient guarantee of the thoroughness and scientific accuracy of the work.

DISEASES OF THE SKIN. An Outline of the Principles and Practice of Dermatology. By MALCOLM MORRIS, Surgeon to the Skin Department, St. Mary's Hospital, London; Corresponding Member of the K. K. Gesellschaft der Aerzte in Wien, of the Wiener Dermatologische Gesellschaft, and of the Société Française de Dermatologie. London: Cassell & Co., Limited, 1894.

Mr. Malcolm Morris is already so well known by his contributions to medical literature, that, as the author of the volume under review, any introduction from us is unnecessary.

The present work is devoted essentially to the clinical facts and the principles of treatment of skin diseases, based on the results of modern research as to their causes, and is clinical and practical in its scope rather than exhaustive in its discussion of moot points in Dermatology.

The first chapter deals admirably with the pathology of the skin. The primary lesions, macules, papules, tubercles, wheals, tumors, blebs, vesicles and pustules, and the secondary lesions, scales, pigmentations, excoriations, ulcers, fissures, scabs, thickening and scars, are defined, making the subsequent descriptions of individual diseases form a clear picture in the mind of the reader. There is also a wonderfully comprehensive, though short, outline of the bacteriology of the skin, a subject quite new, and one rarely found in text-books.

The classification adopted differs radically from that to which we are accustomed, and has been made as nearly as possible on an etiological basis. This is in accord with many modern methods in other scientific branches. In illustration we may note the fact that under the heading "Affections of the Skin dependent on Nerve Disorder" we find hyperesthesia, pruritus, anesthesia, urticaria, prurigo, erythema, pellagra, acrodynia, purpura, peliosis rheumatica, lupus erythematosis, rosacea, dermatitis herpetiformis, herpes gestationis, impetigo herpetiformis, cheiropompholyx, pemphigus, herpes, scleroderma, morphea, lichen, leucoderma, Raynaud's disease, dermatitis repens, diabetic gangrene, hysterical gangrene, glossy skin, atrophy of the skin, Charcot's bedsore, trophic ulcers, Morvan's disease, syringomyelia and edema.

Owing to the prevalent confusion in the use of the word "eczema" the author employs the term "as connoting a catarrhal inflammation of the skin, originating without visible external irritation, and characterized in some stage of its evolution by serous exudation." Eczema is considered a polymorphous disease, and therefore the qualifying words, erythematous, vesicular, papular, pustular, squamous, etc., are retained for purposes of description only, these various conditions merely representing different stages of the same process. To the reviewer, the chapter on this common skin affection is one of the most satisfying in this or in any book with which we are familiar.

Under the heading "Local Inoculable Diseases" are considered animal and vegetable parasites and diseases due to other micro-organisms. The chapters on "General Inoculable Diseases" include scrofuloderma, tubercular ulcers, verruca necrogenica, lupus vulgaris, syphilis, leprosy, yaws and glanders. Scrofula, the author states, is not a

disease, but a condition of the system marked by weak resistance, a predisposition to disease. This view, if generally adopted, would aid in clearing up much of the confusion which is still associated with the use of this antiquated term.

The work throughout savors of the most recent advances in dermatology. Nineteen instructive chromo-lithographs from patients under Mr. Morris's care and a number of wood-cuts serve to illustrate as many characteristic eruptions.

The particular attention which has been devoted to etiology and pathology is a distinctive and admirable feature of this excellent volume. Treatment has been very fully considered, and the sections devoted to this side of the subject are replete with practical suggestions, the fruit of the author's enormous experience. He proves himself to be equally familiar with the literature of the subject, as is attested by frequent references, and has given us the benefit of this knowledge in addition to that acquired by him personally.

As a work presenting modern dermatology in a form suitable for student, practitioner, and specialist, Mr. Morris's book will rank in the first class.

CHOLERA: ITS CAUSES, SYMPTOMS, PATHOLOGY, AND TREATMENT. By ROBERTS BARTHOLOW, M.D., LL.D. Philadelphia: Lea Brothers & Co., 1893.

This little book was written after the recent epidemic in Europe, and sums up in a small space the lessons learned regarding the nature and treatment of the disease. The conclusion that the bacillus of Koch bears specific relations to cholera will meet with general approval, notwithstanding the denials and claims of Pettenkofer and others, whose views, however, have been properly defined. In regard to treatment, the author wisely, we believe, concludes that, though opium is harmful if given in large doses in the early stage, the moderate use of the drug is wellnigh essential for the preliminary diarrhea. All are agreed that opium should not be used in the later stages. Enteroclysis and subcutaneous injections of saline solution are indicated as most important in the late stages, and the performance of the operations is fully described. Altogether this little book gives a readable and useful account of recent knowledge regarding the dread disease of which it treats.

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UNIVERSITY OF PENNSYLVANIA PRESS,
716 Filbert Street, Philadelphia, Pa.

UNIVERSITY
MEDICAL MAGAZINE

APRIL, 1894.

TEMPERATURE AND POLYPNEA.[1]

By Isaac Ott, M.D.,

Easton, Pa.

Gentlemen: When I received the invitation to give a lecture before you, there arose in my mind an impression of doubt what to do in the matter, for in the first place my experience at making addresses is limited, and I shall have to ask your forbearance, and, in the second place, it was questionable if I had anything worth relating to you. Notwithstanding these obstacles, I felt that a request from this great University should receive an attempt at fulfilment, however unworthily it might be done. Further, the subject selected is one upon which Professor Wood has done the epoch-making work in his classic on fever. And these researches of Professor Wood have been succeeded by most valuable and exhaustive investigations of Professor Reichert. In the lecture this evening I propose to speak of the effect of various conditions upon the temperature of the body, the measurement of heat, why heat makes animals pant, and how heat is thrown off or radiated from the body; also the seat of the polypneic centre in a mass of gray matter seated just in front of the crura cerebri, and called the tuber cinereum.

To me the temperature of the body is a subject of wonder. No apparatus constructed by man is able to keep its temperature at so nearly a constant level day after day.

In health year after year the temperature of our bodies does not vary more than a degree and a half. Neither the icy blasts of the North Pole nor the boiling sun of the Equator is able to cause it to vary to any extent. The greatest altitudes or the lowest caverns of the earth cannot perceptibly change this curious mechanism. Neither the warmest food nor the coldest drinks can alter it to any degree. Regard-

[1] A lecture delivered before the Students in Medicine of the University of Pennsylvania, January 10, 1894.

ing heat as a vibration of ether it arises through oxidation. All the vegetables as well as the animals produce heat through the metabolism of their atomic elements. Heat is the equivalent of so much force applied to the maintenance of the organic combinations and their transformation into carbonic acid and water. All animals are divided into warm-blooded, who have a constant temperature, and cold-blooded, who have a variable temperature. The warm-blooded animal has a temperature nearly the same, although it increases and diminishes slightly with an increase or decrease of the temperature of the surrounding air. Instead, the cold-blooded animals are kept in such a dependence with the air temperature that their own varies considerably with it. The human hand, for example, increases only a few tenths of a degree in a very warm atmosphere. The muscles of the forearm immersed for a quarter of an hour in water at 107° F., and the temperature registered by means of the thermopile, show only an increase of three-tenths of a degree, and these muscles are cooled only three-tenths when the forearm is kept for an hour in very cold water. A frog immersed in cold water has a temperature descending as that of the air falls and increasing synchronously with the increase of the temperature of the surrounding air. Whilst in the warm-blooded the temperature peculiar to the animal shows only insignificant variations in atmospheres thermometrically most unlike. The cold-blooded animal instead follows the thermal variations of the air. It shows the greatest change in a moderate temperature, and the smallest in a cold temperature. This indicates that in cold-blooded animals the production of heat increases with the elevation of the external temperature and diminishes with the lowering of it. If the peculiar temperature of the cold-blooded animal is lower than that of the warmer surrounding air, we must attribute it not to a coldness of its blood, but to a greater radiation carried on by the pulmonary and cutaneous surfaces. In fact, if a frog is exposed to the air his evaporating surface is increased, and here the difference between his temperature and the surrounding air is greater. But if he is placed in water, the difference between the frog's temperature and that of the water is less, for here the radiation of heat is limited to the pulmonary surface only. From about 71° F. and below it the frog in the water begins and continues to show a temperature higher than that of the water, because of the smaller extent of his surface of evaporation by the lungs. The frog in the air does not have his temperature higher than that of the air until about 40° F., because of a greater extent of evaporating surface afforded by the skin and lungs. The warm-blooded animal therefore has less thermogenesis in a warm medium, and a greater thermogenesis in a cold medium. The cold-blooded animal has a thermogenesis varying with the temperature of the air, and even

shows a temperature lower than the air, depending, however, upon the extent of the evaporating surface. The variations of the cold-blooded animal depend, therefore, not only upon the different intensity of oxidation, but also upon the extent of the evaporating surfaces. The mammals and birds belong to the warm-blooded, whilst the fish and invertebrates belong to the cold-blooded. Of the warm-blooded, birds in general show the highest temperature (104° F.), and fluctuating in the mammifera between 98° F. and 103.8° F. Some of the birds in the polar regions, the Palmides, had a temperature of 109.9° F., whilst the air temperature was about 15° F. below zero, a difference of about 124° F. between the temperature of the bird and that of the atmosphere. In reptiles the temperature fluctuates between 50° F. and 53.6° F., yet a boa during incubation was found to have a temperature which would be fatal to man, 106.7° F. Reptiles (of the cold-blooded animals) are at the highest point of the scale as regards temperature. In fishes the temperature is generally above that of the air, thus it was 77° F. whilst the air was 74° F., hence they produce considerable heat. The temperature of insects is deduced from the fact that the temperature of the bee-hive is even in winter higher than that of the air, which is about 50° F. It has also been shown by the thermopile in numerous insects that they are warmer than the surrounding air. The average excess above the temperature of the air was 0.1° F. to 11° F. In the invertebrates the temperature was always less than that of the medium in which they live, and it was found that among those whose nerves and muscles were well developed, as the crustacea, that they produced much more heat than those whose nervous and muscular systems were not so well differentiated as in the medusa. The hibernating animals resemble the cold-blooded animals, for from deficiency of oxidation they cool to a degree surpassing very little the surrounding temperature. It has been known for a long time that the temperature of the hibernating animal in a waking state is but a little unlike although somewhat lower than that of the non-hibernating animal. But in a state of hibernation it falls until it is only a few degrees higher than that of the surrounding air. Observations on the marmot have shown that the lowering of its temperature is greater the longer the lethargy, hence if it is 86° F. at the beginning, it is in deep sleep or hibernation only 2.8° F. over that of the surrounding air. In the hibernating animal the carbonic acid exhaled is less than the amount of oxygen absorbed, whence it is inferred that the oxidation of the carbon is less than that of the hydrogen. It is perhaps because in the abundant fat which oxidizes in hibernation that the hydrogen compound is much more in excess than the other oxidizable compounds of the animal.

When the hibernating animal awakes and becomes warmer, the

temperature of the anterior part of the body rises quicker than the temperature of the posterior members; hence this fact has been adduced as an argument that a thermogenic centre existed in the brain. If, however, the hibernating animal is put in a temperature of about 10° F. below zero, he dies through a paralysis of the centre of respiration.

Temperature of Man.

Although the blood makes a complete circuit in the blood-vessels of the body in about thirty-two seconds, and aims to equalize the heat in different parts of the organism, there is always a difference of temperature between them. From the minimum temperature in the centre of the soles of the feet it reaches its maximum for the skin in the axilla, lowest in the urine, it is higher under the tongue, it is still higher in the rectum and vagina and in the uterus. The temperature of the blood is higher and more steady when it is compared with the different parts of the surface of the body and in the hepatic veins reaches its maximum. It may be deduced from the variations mentioned that the temperature may be averaged in man at about 98.4° F. The differences met with in the temperature of the different organs is modified by the varying degree of the cooling power, especially by radiation. By varying intensities of oxidation we have a temperature higher in the contracted muscle and active glands than in horny tissues or the lymph, whose heat is chiefly transmitted by the surrounding or underlying tissues. The varying intensity of the radiation explains how we have a lower temperature in the external than in the internal organs, where radiation is at a minimum. The skin being more exposed to radiation cools much more readily than the stomach. From the diminished intensity of oxidation as well as the greater radiation by exposure, the subcutaneous connective-tissue in man is lower in temperature than the contracting muscle. A greater flow of blood to an organ from the greater heat of the former increases the temperature of that organ which is still further increased by exaggerated local oxidations. Compression in the axilla lowers the temperature of the biceps several tenths. When these thermal variations extend to several organs they may influence the average general temperature of the body as ensues from muscular work. The difference between the skin and the internal organs is important in this connection, the former produces little heat and much of it radiates, the latter produces considerable of it, and it radiates very little except through the blood. It results, then, that cooling is facilitated in the skin by the slowness of the circulation and in the internal organs by the rapidity of the circulation. Hence, the greater the differences between the

internal and external temperature the slower the circulation should be. Now certain conditions modify the degree of temperature of the body, and of these I shall first consider age. Immediately after birth the infant is 0.5° F. warmer than the mother. A short time after birth it falls 1.6° F., whilst twenty-four hours afterwards it has its normal temperature, which is 0.7° F. below the norm of an adult. Perhaps sufficient attention was not paid in these temperatures of infants to the temperature of the surrounding air which can cause rapid radiation in the new-born owing to the relation of the area of surface to the weight of the body. It has in comparison with the weight of an adult a threefold greater radiation. In fact, the well-known facility with which the new-born acquires a cold is pertinent. This happens not only through the extended radiation but also because of the more frequent respiration. To this is added the greater quantity of heat employed in warming the air breathed and evaporating the water due to the relation of surface to body weight. From some sublingual observations upon men aged 90, with an external air temperature of about 55° F., it was found that their average temperature was 98° F., with a great readiness to become cool, not through a more extended radiation as in infants, when weights are compared, but from deficiency of combustion, which explains the need of more clothing. Sex is without influence upon the temperature. The temperature of different races, when placed in the same conditions, is practically the same. In some cases the acclimated European has a slightly lower temperature in a warm country than the Asiatics.

The hour of the day.—The rhythm observed during different parts of the day is independent of the muscular contraction. It depends upon the nervous system which regulates metabolism, production, and losses of heat and strikes a balance between them, which is higher in the evening than in the morning. In short, the daily rhythm of temperature depends not upon the production of heat but upon the regulation which is due to the nervous system. This rhythm is constantly repeated for all ages. Omitting inconsiderable variations and the consequent construction of thermometric lines resulting from the researches of several observers, it may be said that generally the temperature diminishes during the night, reaching its minimum between 2 to 6 A.M., and increases in the daytime, reaching its maximum between 5 to 8 P.M., and presenting the average about mid-day. The variations are comprised within the limits of 0.9° F. to 1.4° F., and as they also take place during fasting they must be held as independent of the food, notwithstanding that the elevations are more when the corresponding hours are synchronous with the times of taking food. Generally, but not always, the elevations concur in a greater frequency of pulse. When a man works during

the night he reverses the thermometric curve. Maurel ascribes the vesperal rhythm to three causes,—food, light, and movement,—and of these he holds food as the most important. This factor is totally put out of court by Dr. W. Carter, on animals which have fasted three days, yet the vesperal exacerbation ensued. The worker at night reverses the rhythm, and here light could not be the active agent, unless it is the artificial light, which would be hardly sufficient. From these results the conclusion ensues that it must be due to an action of the nervous system, and probably to the activity of the thermotaxic centres.

Effect of food upon the normal temperature.—Food does not essentially modify the variations of temperature, but only elevates the average temperature about 0.9° F. It causes an increase after the morning and mid-day meals, which, in consequence of the hourly increase in the evening, is less noticeable. It appears that the quantity of food does not greatly influence the amount of elevation, provided, however, that it is sufficient to meet the needs of the economy. The first day of fasting has an opposite effect in man, lowering the average temperature about half a degree, which temporarily rises again on the following day.

Even in animals the temperature is not regularly lowered with the duration of the fast. After the initial decrease it remains nearly stationary to descend rapidly at the approach of death. Thus in the cat it remains stationary until the fifteenth day of starvation during the primary decrease, and progressively descends between this and the day of death to 91.4° F. Inasmuch as in fasting oxidation must diminish from lack of combustible material, then the heat is produced by the oxidation of the components of the organism. The fasting animal does not present conditions favorable to radiation and cutaneo-pulmonary evaporation, hence the lowering of temperature must be owing to diminished thermogenesis, as shown by the smaller elimination of the products of oxidation,—namely, CO_2 HO and NH_3.

Effect of muscular contraction on labor.—These conditions are always accompanied, owing to greater metabolism, with an elevation of temperature, which was found to be increased a half degree in intense mental work. In a man after a long period of labor there was found a greater elevation of the cooler parts (the foot and hand) from the tendency to equalization of heat, caused by the quickened circulation in the different parts of the body. In incubation the average temperature is elevated, as was ascertained in the hen, which, on account of the rapid loss of flesh, showed the rapidity with which the fat is oxidized that the eggs should be properly warmed. The temperature of the abdomen of the hen fluctuated between 105.6° F. and some degrees higher.

The temperature of the surrounding air.—The temperature of the periphery of the body varies considerably with that of the surrounding air, falling when the air descends and rising upon its ascent. The internal temperature of the body is not much changed by the varying temperatures of the air. The influence of cold baths upon the normal body has been studied. When the cold baths lasted only fifteen minutes there was no fall of temperature, but when prolonged thirty minutes to an hour there was a fall of about a half to one degree. In comparing the temperature of man with that of animals the strange phenomena is seen that the temperature of man is about two degrees less than other mammals, excepting the monkey and horse.

To measure the temperature of an animal we use the thermometer and the thermo-electric apparatus. To take the temperature of an animal he must be permitted to run about the room, for Dr. E. T. Reichert has shown that even putting him in a box will cause considerable fall of temperature. To measure the amount of heat we employ the calorimeter.

Radiant heat is the same thing as what is called light, only it is perceived by us through a different channel. The radiation which we become aware of by the eye is called light. When we detect it by the thermometer or by the sensation of heat we call it radiant heat. When equal weights of quicksilver and water are mixed together the resulting temperature is not the mean, as one might suppose, of the temperature of the ingredients. The effect of the same quantity of heat in raising the temperature of the body depends not only on the amount of matter in the body, but on the kind of matter of which it is formed. This is called the capacity for heat or specific heat. The capacity of a body for heat is the number of units required to raise that body one degree of temperature. The specific heat of a body is the ratio of the quantity of heat required to raise that body one degree to the quantity required to raise an equal weight of water one degree. The amount of heat necessary to raise the temperature of one pound of cold water, 1° F., is called a unit of heat. And when a weight of one pound falls through a distance of seven hundred and seventy-two feet, then sufficient heat is generated to raise the temperature of one pound of water 1° F. Hence a unit of heat is equal to the mechanical work measure by 772-foot pounds. The unit of heat may be measured by other thermometers. Thus in France the measure would be the amount of heat required to raise the temperature of one kilogramme (that is 2.2 pounds) of water 1° C. This French unit of heat is called the calorie. One calorie is equal to 3.96 heat units. In Germany they frequently use the calorie, meaning the gramme-calorie; in France the kilogramme-calorie or large calorie; and in English-speaking countries

the pound-heat unit. The temperature of a body is the quantity of heat which indicates how hot or cold a body is. The whole science of animal heat is founded on thermometry and calorimetry, and the indirect method of calculating the quantity of heat produced from the quantity of nutritive materials which have been consumed.

Calorimetry is the measure of the quantity of heat which results from the transformation of energy and is expressed in heat units. (A model of the author's calorimeter was exhibited and its mechanism described.)

Having considered the temperature and the means to measure it, I shall now speak of how an animal keeps himself cool. For an animal in regulating his temperature must not only produce heat but at the same time must produce cold in order to keep his temperature at a constant level. There are three modes of keeping yourself cool: (1) by free perspiration; (2) by dilating the blood-vessels of the skin, thus exposing more blood to the lower temperature of the air, and (3) by throwing off more water through the lungs. In a paper published by Professor Richet on what he calls a new function of the medulla oblongata, he states that in dogs exposed to a temperature of 86° F., with the elevation of the heat of the body of the animal, the number of the respirations suddenly increased 350 to 400 per minute, a form of respiration which he calls polypnea or thermopolypnea. The application of heat to the bodies of animals have been studied by many observers. Dr. Ackermann arrived at the conclusion that not only the skin of animals but the lungs are used as an apparatus to regulate the body temperature, the skin acting in a more gross manner, the respiratory mechanism being used in bringing about the minor variations. He also states that the frequency of the respirations is caused neither by the want of oxygen nor excess of carbonic acid in the blood, but alone in the increase of temperature of the whole organism, or heat dyspnea. When the temperature of the animal is high, artificial respirations have no effect upon the frequency of the respirations, not even when, in consequence of inflation, the venous blood is bright red. But at a lower temperature artificial respiration can greatly reduce or even bring to a stand-still the movements of the respiratory apparatus. Dr. Goldstein has also extended the experiments upon this subject in Fick's laboratory, and he asks, Is the increased temperature of the blood a new cause adding itself to the stimulus for the respiratory centre normally present in the blood, or is it an influence diminishing resistance? He also inquires if it acts on the cerebral convolutions primarily and through these on the respiratory centres, or does it act on the skin first or on the pulmonary endings of the pneumogastrics first, or, finally, does it act directly on the nerve-centres which govern the

respiratory movements? He arrived at the conclusion that the heated blood acted directly on the respiratory centre, causing an increase of respiratory movements. Dr. C. Sihler has also made a number of experiments upon this subject, and arrived at the conclusion that the animal cannot be made apneic. Apnea is a state in which, by rapid inflations of the lungs, the blood is so surcharged with oxygen that the animal does not breathe for some time after you stop the inflations. Cutting the pneumogastrics does not prevent the increase in respiratory rhythm nor does opium arrest it, although Richet found chloral to do so. Dr. Sihler does not fully agree with Dr. Goldstein that the cause is in the blood, acting directly upon the respiratory centre, but holds that the increased respiration following exposure of an animal to heat is due to two causes, skin stimulation and warmed blood. Of these skin stimulation is the more powerful. That apnea can be produced if the spinal cord is cut, thus greatly removing the skin stimuli, and that the direct action on the respiratory centres of the hotter blood of the heated animal is probably not or not only due to its temperature but to its greater venosity. Drs. Gad and Mertschinsky have also investigated the subject and they believe that increased temperature of the blood stimulates the respiratory centres or increases their excitability.

In living animals the throwing off or radiation of heat, if it followed the law of Newton, then it would be greater when the temperature of the animals exceeded the temperature of the surrounding air. But Dr. d'Arsonval has shown that they radiate less heat at the freezing-point than they do at 57° F. If a warm-blooded animal of a constant temperature was an inert mass it would follow the law of Newton. But it is not so, for when it becomes cold externally the vaso-motor nerves contract the blood-vessels so that when the temperature ascends from zero to 57° F. the radiation also increases. There is a temperature which corresponds to a maximum radiation of heat, and it is about 57° F.; and when you recede from this point as the temperature of the surrounding air is elevated the radiation is in accordance with the law of Newton. In other words, radiation of heat in animals below 57° F., owing to vaso-motor changes, does not follow the law of Newton; above it it does. Thus at the temperature of 57° F. there are about two and a half times more heat radiated than at 77° F. Calorimetric experiments made upon children prove that what is true of animals is also true of infants; but in them the greatest radiation is at a little higher temperature than in animals,—that is, 60° to 64° F. The size of an animal also has an influence upon the quantity of heat thrown off. It must be remembered that, according to some authors, small animals with an equal extent of surface throw off more heat than larger ones. The

heat-production, according to some observers, is proportional to the cube-root of the square of the weight of the body. But Dr. E. T. Reichert has shown that this is not correct, but that heat-production increases as the weight increases. Whilst animals like the horse cool themselves by watery vapor being thrown off from the skin, other animals who do not evaporate water by the skin throw it off by the lungs. It is well known how much the heat oppresses us in a humid or moist atmosphere,—too much humidity, as they say,—whilst a much higher temperature is borne on a day with a dry atmosphere. It is in this way that a man can enter heated chambers; the air being very dry he perspires, throws off watery vapor in this way, and cools himself. But if for some reason the chamber is moist with vapor he will not be able to stand a high temperature. Thus a man may remain some time in a chamber heated to 275° F., but if the chamber be filled with moisture he cannot remain but a few minutes if the heat rises above 115° F. The perspiration is a reflex act due to the irritation of the nerves of the skin sending stimuli to the sweat-centres seated in the spinal cord. In man with a human calorimeter, by placing the whole body in the instrument and then measuring the watery vapor thrown off and comparing it with the amount of water thrown off by the body, with his head thrust outside the instrument by means of an aperture in the door, there was found that fourteen per cent. was exhaled by the lungs. The exhalation of water from the lungs is proportional in animals to the rapidity of the respiration. But this is not true of carbonic acid, for no matter what the rapidity of respiration in polypnea may be the whole amount of excretion is not modified, and the same is true for the average amount of oxygen absorbed. When a dog is in a state of polypnea he hangs out his tongue and the saliva flows. It has been thought that this salivary flow took the place of perspiration, but the perspiration has its water in a volatilized state, by which act it carries away heat; but the saliva is not volatilized, and thus convects no heat.

The question now to be considered, How is polypnea produced? or, in other words, How does the animal cool himself? In the following discussion I shall have to follow the statements of Professor Richet as given in his several papers upon the subject. It might be supposed as others have imagined that polypnea is due either to irritation of the centre of respiration or to stimuli of the nerves of the skin, throwing impressions on the respiratory centre, a reflex act just as we have a reflex irritation of the sudorific centres, for these centres have the same aim to accomplish,—that is, the vaporizing of water of the skin. For you must remember that fifteen grains of water—and perspiration is nearly all water—require 2.3° heat units to volatilize it. And as you know the

water escapes in perspiration partly in a vaporized condition. It might be supposed, as already imagined, that the heat irritated the endings of the pneumogastrics in the lungs and thus stirred up the centre of respiration to increased activity. You know that after a section of the pneumogastrics in the rabbit, the number of the respirations per minute diminishes from 140 to 40, and each respiration is about five times as deep as before; the inspiratory expansion of the thorax lasts several seconds, at the end of which it suddenly collapses, forcing the air out of the chest with so much force as to make an audible sonorous noise. This sudden collapse is followed by a long pause which is characteristic. The mode of breathing after section of the pneumogastrics is that of dyspnea, but in polypnea the respirations are increased, whilst in dyspnea they are diminished. It might be thought that after the slow respiration due to the section of the pneumogastrics that you could not make the respirations again rapid, that is much more than they normally are by heating. But if you heat him they will soon become as frequent as before, and you might imagine from the frequency of the respirations that the pneumogastrics had not been divided. It was also found that if the temperature was only a little elevated you will not have the enormous slowing of respiration ensue as you usually do after section of the pneumogastrics. By the process of exclusion these facts lead to the conclusion that polypnea is not due to the stimulation by the heat of the terminal endings of the pneumogastrics in the lungs. We must now see how far the nerves of the skin act in the production of this phenomenon through the respiratory centre. Now if in place of irritating the nerves of the skin by heat, you produce a general tetanization of the muscles of the body, it will be found that the polypnea does not ensue during the electrization, but some minutes after it. Now polypnea does not start immediately when the animal is heated, but it requires several minutes, four to ten, before it is in activity. It has been alleged that the general tetanization which throws all the muscles into activity develops a rise of three or four degrees, and that this increase of temperature causes polypnea, not through the cutaneous nerves, but by a stimulation of the nerve-centres themselves. According to this view polypnea is also central in origin, but it seems to me that the rise of temperature within the body and necessarily in the circulating blood can just as readily affect the cutaneous nerves as when you throw heat on the body from the outside. Further, the electrical stimulation itself may be followed by an increased frequency of respiration due to cutaneous stimulation. There are drugs which abolish polypnea; thus if you give chloral in solution to an animal (upon which a tracheotomy has been done) by a careful injection, then the rhythm of the respiration is slightly slowed. Now if you put the

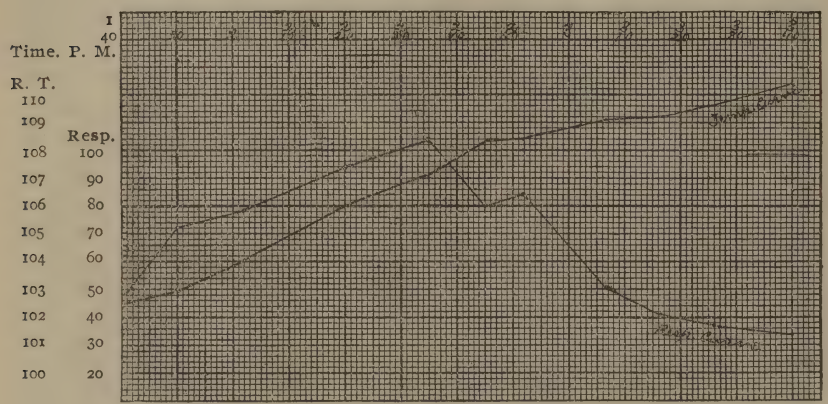
same animal into a warm chamber he does not, as a normal dog, take on polypnea very rapidly.

The chloralized dog preserves its rhythm of respiration nearly without change, but as the heat continues he is warmed up to 107° F., when the polypnea starts. Now, in a normal dog it starts before the animal is warmed up to an appreciable extent. Now, this experiment is also put forth to show that there is a polypnea due to central stimulation, and not to skin stimulation. But it seems to me that it rather proves a blunting of the polypnea centre, a diminution of its irritability by which the skin stimulation requires some time to arouse it from its chloral slumber. If, however, during the polypnea another dose of chloral is given the polypnea is arrested. In infants we see a polypnea during fever; the respiration rises in frequency with the rise of the thermometer. In cold-blooded animals the respiration is also augmented by elevation of temperature. It might here be suggested that heat would be an excellent means to resuscitate the respiration in chloralized cases. If you produce asphyxia in a chloralized and polypneic animal the polypnea immediately ceases. It has also been seen, when you produce polypnea by general electrization, that after the temperature returns to normal the polypnea continues. It has also been found that muzzled dogs are not able to preserve their normal temperature at a heat which would hardly inconvenience a non-muzzled dog. Here the base of the tongue and the epiglottis cover about one-half of the orifice of the tracheal opening. When by making frequent respirations with a bellows the blood is saturated with oxygen it is called a state of apnea, because after you cease using the bellows the animal does not breathe, because his blood is saturated with oxygen and there is no excess of carbonic acid to stir the centres of respiration into activity. But an animal breathing four hundred times a minute does not breathe because there is a need of it, for his blood is saturated with oxygen and there is no augmentation of the carbonic acid; in fact, there is an excess of respiration beyond all wants of the economy when you view it from a chemical stand-point. That this is true is proved by the experiment where a dog warmed up and breathing two hundred and fifty times a minute has a stop-cock adapted to the tracheal tube. Now, if in the midst of polypnea you rapidly close the stop-cock so as to prevent the passage of air into the lungs you do not arrest the respiratory rhythm; the polypnea continues as before for a minute, and yet there are no chemical changes going on by the act of respiration. The animal has enough oxygen in the blood to satisfy the demands of the tissues for a minute. If you make the same experiment upon a dog breathing normally you will see the respiration immediately arrested at the end of about half a

minute,—a form of asphyxia. But in thermic polypnea, when the wind-pipe is closed, you do not see the least sign of asphyxia during the first minute. It takes two to four minutes before you have the slow respiration of asphyxia; the animal is in a state of apnea. The researches of several observers have shown that the stimulus of the centre of respiration is the blood, more or less rich in carbonic acid and oxygen. When the blood is exhausted of its oxygen the centres of respiration demand an inspiration. But in polypnea you cannot find any similar state of affairs; the blood is saturated with oxygen. There must be another cause for the excitation of the centre of respiration than the chemical one. Not only does apnea exist in polypnea, but the apnea is necessary. If you adapt (as Richet has done) a long and large rubber tube to the tracheal canula the air at each expiration is vitiated; the animal does not breathe pure air, but air that has already served the purposes of respiration. Now, putting the animal so arranged into a warm medium does not start up polypnea; he is not able to become polypneic. Neither is the dog provided with the long rubber tube through which he breathes able to cool himself. Here the cessation of polypnea by asphyxia is not a physical one, but a chemical one. Hence there must be two centres,—one presiding over gaseous exchanges in the lungs and the other which regulates the cooling of the animal. Now the question arises, Is the arrest of polypnea in asphyxia due to want of oxygen or excess of carbonic acid? If a dog is rendered polypneic, and you make him breathe in an atmosphere containing forty volumes of carbonic acid and sixty of oxygen, the polpynea will immediately cease. Here it is quite evident that the want of oxygen is not the cause of arrest, because you have three times as much as normally exists. It is rather the excess of carbonic acid. It might be supposed that the excess of carbonic acid in this artificial atmosphere prevented the oxygen from being absorbed; but this is not correct, as it does not prevent the coloring matter of the blood from taking up oxygen. It might also be thought that the arrest of polypnea by the carbonic acid was too rapid, as it happens, according to Richet, in about five seconds. But it must be remembered that transmission of the CO_2 in the external artificial atmosphere into the blood and from there to the respiratory centre is rapid. Hence the apparatus to cool an animal differs in animals who sweat and in those who do not sweat; those who lose the water by the skin and those who lose it by the lungs. I have now given you the main facts about the radiation of heat from the body. It was after these data were noted that it occurred to me that this subject would bear further investigation. With this end in view I made some experiments upon the lower animals.

They were etherized, bound down, the skull trephined, and the cortex broken up with a blunt probe, so as to prevent any perception of pain during the experiment. With the polygraph of Marey was connected a T-shaped canula which had been inserted into the trachea. Through this arrangement the number of respirations were written on a smoked drum of the kymographion of Ludwig. To study the effect upon the normal animal a sheet-iron box, lined with wood, and large enough to accommodate Czermak's rabbit-holder, was used. Upon the rabbit-holder the animal lay, and the whole arrangement was heated by a Bunsen burner beneath. A thin layer of water was kept on the bottom of the box to prevent the wood from being charred, and by its humidity to rapidly heat the animal. The top of the box was partly closed by a woollen covering, although it was not extensive enough to prevent a full interchange of air in the box. The tempera-

FIG. 1.

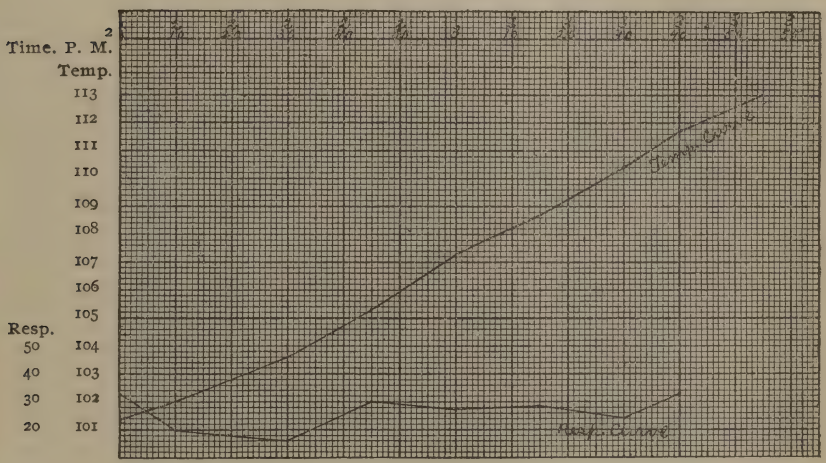


ture of the box was usually 100° F., but at times it was higher and lower. A thermometer hanging in the box noted its temperature. After the normal respiratory movement of the animal was noted he was placed in the heated box for about five minutes, when the curve was again taken and the rectal temperature noted. The observations were taken every five, ten, or fifteen minutes, according to the circumstances which I wished to study.

When the cortex cerebri alone was removed heat still caused a great increase of respiration. If, however, the corpus striatum and the parts between it and the optic thalamus were removed, then the respirations at first began to fall instead of rising, but at a high rectal temperature rose to a little above normal. If, however, a puncture was made by a blunt seeker into the tissues between the corpora striata and the

optic thalami, then no increase of respiration ensued except a small amount on high elevation of temperature of the animal just before the respirations began to fall. In Fig. 1 are represented the curves of temperature and respiration with the cortex removed. In Fig. 2 are shown the curves of temperature and respiration when the corpora striata and the parts between them and the optic thalami are removed, thus destroying the polypnea centre. In the first figure the curve of temperature and respiration ascend together till the rectal temperature reaches a high point, when the respiration-curve begins to descend and continues falling till death ensues. This lethal temperature-point being about 111° F., a fact shown by several observers, notably by Professor Wood. In the second figure the temperature-curve rises as in Figure 1 more abruptly, whilst the respiration-curve begins to descend, and only

FIG. 2.



at limits of temperature approaching the death agony does it rise to normal or a little above it. If the animal is breathing rapidly and a probe be thrust into the tissues of the brain between the corpora striata and optic thalami, then the respiration is greatly reduced, and remains so no matter what the internal temperature of the animal. If with a pair of electrodes insulated to near their point with sealing-wax and attached by a wire to an upright on the rabbit-holder to steady them, an induction current is sent through them for about three minutes, then the respirations in the animal with his cortex removed are doubled or trebled in number. In Fig. 3 the line marked 1 is normal, and during the 2, 3, and 4 curves the current is acting on the polypneic centre, which is shown in the rapid curve marked 5. The current was

so weak as to be scarcely perceptible to the tongue, and the electrodes were pushed to a point lying just over the parts between the corpora striata and the optic thalami. In some experiments a single induction shock per second was sent through the centre above mentioned, and arrest of the chest in expiration obtained. This is seen in Fig. 4, which is to be read from right to left. To establish a centre three things are necessary; 1, that its abolition causes the phenomena to disappear; 2, that irritation, mechanical, chemical, or electrical causes the phenomena to be present; 3, that the part of the nervous system exhibiting these peculiarities is circumscribed in extent. If now I apply these tests to the polypneic centre, it is found that the function vanishes when this point is destroyed, and that it appears when the same part is electrically irritated, and that this centre or point is circumscribed in extent. It seems to me that the polypneic centre is fully established. Now this centre is located at the base of the brain. The floor of the interbrain consists of a mass of grey matter which is prolonged in a funnel-shaped manner towards the base of the skull. This projection is called the tuber cinereum and its cavity the infundibulum. It is here in the tuber that the polypneic centre has its location. This discovery shows also that in lower animals external heat acts in a reflex manner upon the polypneic centre and not directly upon the respiratory centre, as has been held by all physiologists; that the sensory nerves send impulses into the polypneic centre which, acting as a reflex centre, sends other impulses which are carried back to the respiratory centre in the medulla oblongata and cause rapid respiration. That polypnea is really due to thermic irritations conveyed by the nerves of the skin to the tuber cinereum was proved by experiments which I have made. If the cortex cerebri is removed under ether and a test-tube filled with hot water is applied to the tuber cinereum the number of respirations is increased but little. Here the heat increased slightly the irritability of the polypneic centre, but was unable to start polypnea. When polypnea is started a piece of ice applied to the tuber cinereum slightly reduces the frequency of the respiration. Heat when applied here is not able to excite rapid respiration through central stimulation, for it can act only through the peripheral terminations of the sensory nerves.

Normally, when the polypneic centre is cut away from the centre of respiration, the curve of ascent of the respiration, instead of being erect, slopes much more, showing that normally it has a tonic influence on the centre of respiration. In excessive heating I have seen Cheyne-Stokes respiration at times, and pressure on the tuber plays an important part in that kind of respiration. These facts lead us to believe that fever in man excites rapid breathing in a similar manner; that heat is

FIG. 3.

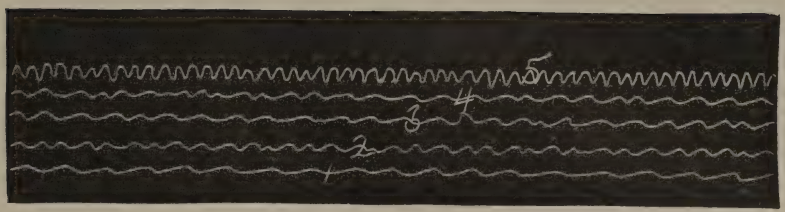
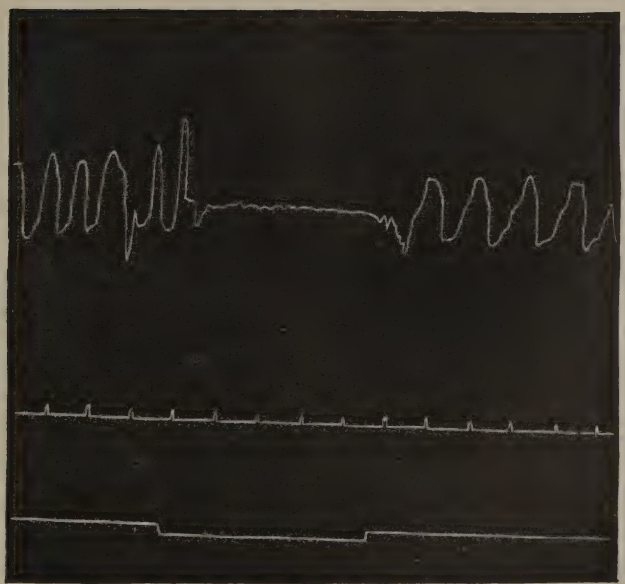


FIG. 4.



the best external stimulant to rouse through the polypneic centre the centre of respiration in cases of poisoning or drowning. I have twice seen the best effects in cases of opium-poisoning, where the respirations were about six per minute, by immersing the feet in water of a high temperature. If we examine the respiratory apparatus, it is found that the nervous mechanism is as follows: (1) The main centre in the medulla oblongata; (2) Christiani's expiration centre; (3) Martin and Booker's inspiration centre in the posterior bodies of the corpora quadrigemina; (4) Christiani's inspiration centre in the thalami at the anterior edge of the corpora quadrigemina. It occupies the centre of the thalami exactly in the median line, and, if I may be permitted a fifth centre, the polypneic. Christiani states that the optic, auditory, sensory fibres of the skin and certain fibres of the pneumogastric stand in relation with the thalamic inspiration centre. The inhibitory nerves, according to him, in connection with these centres, are the other fibres of the vagus not mentioned above, the nerves conveying painful sensations, and especially the trigeminus. Having shown that a polypneic centre exists in the tuber cinereum, it remains to determine why after its removal high temperature makes the respirations decrease instead of increasing as they normally do. When I cut the trigeminus within the skull, they still fell. When I removed the corpora quadrigemina, there was also a decrease of the number; the same ensued when only the pons and medulla oblongata were left. If, however, the pneumogastrics were divided, then hardly any fall ensued. I noted in a few experiments where only the pons and medulla were left that, with the pneumogastrics intact, a temporary rapidity of respiration ensued, soon followed by a fall. In one case, where the dividing line between the pons and medulla was nearly reached, no fall ensued, and the increase of respirations at the start lasted. This increase was not over about ten or eleven in number of respirations per quarter minute. When a rabbit is heated up and polypnea occurs, plunging the rabbit into ice-water brings the respiration to normal, although the respirations are very deep. But this return to normal lasts only fifteen seconds, when the respirations ascend again nearly to their original rapidity, and then gradually descend. If ten grains of antipyrin are given subcutaneously and the animal heated up, polypnea does not take place, but if polypnea is first thoroughly established and eight grains of antipyrin injected per jugular, it takes about fifteen minutes for the breathing to return to normal. Injection per jugular of putrid blood causing septic fever seemed to partially prevent polypnea, for when the animal was heated up the respirations did not attain their maximum frequency. Clipping off the fur and covering the animal with mucilage did not prevent polypnea, but it took a longer time than usual to heat him up. Here

the mucilage acts as an irritant to the sensory nerves, and diminishes heat-production. It would seem that when heat is applied to the skin two influences of an antagonistic nature are set up,—one to arouse the polypneic centre and through it the respiratory centre into increased activity, the other through the exciting and inhibiting nerves of the pneumogastric and probably through the nerves of the skin to cause a depression of the number of respirations. However, the impulses sent into the polypneic centre preponderate and mask the antagonistic ones. These experiments proved that, after the removal of the polypneic centre, the fall of frequency of respiration by the rise of temperature was due mainly to an irritation of the inhibitory fibres running through the pneumogastric to inhibit the main respiratory centre. The facts still further substantiate the existence of the polypneic centre. As already stated, the polypneic centre is active in the regulation of the temperature of the body. The thermopolypneic centre is ever active, it never sleeps. The moment high temperature affects the sensory nerves of the skin the centre signals the medullary respiratory centre to go to work and cool down the body by throwing off heat to counterbalance that thrown on. That a polypneic centre exists in man is supported by cases of rapid respiration in ladies reported by Dr. S. Weir Mitchell. A case of Dr. Janeway is also of considerable value in this connection. He reports a hotel-keeper who, in the fall of 1889, was thrown from the platform of an electric car, striking the pavement with his shoulders and back of the head. In consequence of this fall he remained unconscious ten days, and when he recovered consciousness he found that he was breathing, as he expressed it, like a steam-engine at high pressure. He has breathed rapidly ever since; and in 1892, in February, the rate was 152 per minute. Otherwise he was in good health. He had a tracheitis due to rapid respiration. His case turned out to be hysterical, although the functional trouble must have been connected with the polypneic centre, for no one could voluntarily keep up so rapid a rate. I have now gone over the principal facts upon the regulation of temperature by pulmonary radiation. The seat of the polypneic centre has been shown to you. But several other centres are concerned, not in making cold, but in making heat. These I shall have to leave untouched.

THE RECIPROCAL RELATIONS OF MITRAL STENOSIS AND PREGNANCY.[1]

By Herman B. Allyn, M.D.,

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Pregnancy under physiological conditions carries with it changes in the composition and volume of the blood and in the heart itself. The albumen, the hemoglobin, and the red blood-cells are all diminished, while the water is increased to such a degree that there is actual increase of the total volume of the blood. The consequences of these changes in the blood are obvious. The tissues are bathed in a fluid poorer in nutriment than it is in health, and therefore degeneration of tissue, and particularly a fatty change results.[2] The diminution in respiratory power, which increases as pregnancy advances, permits of an accumulation of carbon dioxide, which also has an unfavorable influence upon nutrition. The increased volume of the blood calls for greater pumping-power and capacity on the part of the heart, the result of which is a physiological hypertrophy with dilatation,—an eccentric hypertrophy of the heart, especially of the left ventricle.

The part played by the gravid uterus itself in embarrassing the circulation is probably not a large one. It acts as an obstacle to the circulation and increases the tension in the arteries.

The occurrence of physiological hypertrophy of the heart during pregnancy appears first to have been announced by J. F. Larcher, who, while interne of the Paris Maternité, from 1826 to 1827, was struck with the frequency of hypertrophy of the left ventricle in 130 autopsies on women from 18 to 35 years of age who had died for the most part of puerperal septicemia. His observations were reported to the French Academy, and a commission which was appointed confirmed them. The Germans, however, have not accepted the French results; some declare that no hypertrophy exists, and others that it is not a simple hypertrophy, but that it is associated with dilatation, particularly of the right heart. In this they are correct. The eccentric hypertrophy subsides normally within two or three weeks after delivery.

Some writers, Istria[3] and others, maintain that pregnancy is at times a cause of chronic endocarditis, owing to the great increase of functional activity which becomes necessary. I believe that repeated pregnancies can have this effect.

[1] Read before the Society of Clinical Research, Philadelphia, January 23, 1894.

[2] Cf. Leopold Perl's experiment of producing fatty degeneration of heart by repeated blood lettings.

[3] De la grossesse considérée comme cause de l'endocardite chronique. Par Charles Istria. Thèse. Paris, 1876.

That the heart during pregnancy undergoes hypertrophy with dilatation, and that repeated pregnancies may cause chronic endocarditis, show conclusively the strain to which the heart is subjected during gestation and labor, and make perfectly clear the further fact that pregnancy and labor must tend to aggravate pre-existing cardiac disease.

All forms of heart-disease occurring in pregnancy should be of great interest, if not because we may be called to treat such cases, then because we may meet them in our own families, and should, at least, have some conception of their prognosis. It is a little singular, in view of such possibilities, that there is only one monograph on this subject in the English language, that by Angus Macdonald, published in 1878. Plenck,[1] in 1795, appears to have been the first to write upon it. Then a long silence ensued. In 1827, Costa brought it to the notice of the French Academy, with the report of a case, and suggested the propriety of inducing premature labor in certain cases. The Academy approved the suggestion. Since that time an abundant literature has accumulated by French, German, and Italian writers, the most important being in the form of French theses.

While, as already stated, the whole subject of heart-disease and pregnancy is of great interest, I have been especially attracted by mitral stenosis, partly because it is the most frequent lesion in women, partly because I have met with several cases, and perhaps chiefly because it appears to be the most fatal of the cardiac lesions in pregnancy. The relative frequency of mitral stenosis in the two sexes can be judged from the following statistics. Sir Dyce Duckworth has collected 264 cases of this lesion; 86 of the patients were males, and 177 females, the proportions being as 33 per cent. to 67 per cent. In other words, about twice as many females as males are affected. Dr. Mary A. Marshall[2] has collected 508 cases, including the 264 of Duckworth; of this number 157 were in males and 351 in females, the percentages being as 30.9 to 69.09. The causes for this preponderance in women have not been determined satisfactorily, and do not concern us now.

The subject of this paper is the reciprocal relations of mitral stenosis and pregnancy,—that is to say, on the one hand, the effect of pregnancy upon the heart lesion, and, secondarily, upon the patient in general; and, on the other hand, the effect which the heart lesion exerts upon the course of pregnancy, and, secondarily, the effect upon the fetus.

The result of narrowing of the mitral orifice is to cause hypertro-

[1] Plenck, Anfangsgründe der Geburtshülfe, Wien, 1795.

[2] Du rétrécissement mitral, sa fréquence plus grande chez la femme que chez l'homme, Thèse, Paris, 1879.

phy and dilatation of the left auricle, which is called upon to force the blood against the obstruction. If the left auricle is not adequate to this work the result is a stasis of the pulmonary circulation; this in turn means increased work for the right ventricle, which therefore is liable to hypertrophy and dilatation. The walls of the left auricle may be one-fourth of an inch thick, instead of the normal,—one-twentieth of an inch. Extreme dilatation with paper-like walls is rare. The ordinary symptoms of mitral stenosis are well known, and will not be rehearsed. Suffice it to say that the direct cardiac symptoms are few, and consist of attacks of palpitation, sometimes of pain and oppression. The pulse is small, of high tension, and subject to irregularity. The pulmonary symptoms are due to passive congestion, and become prominent in proportion as the right ventricle weakens. They consist of dyspnea, cough, hemoptysis, bronchorrhea, and bronchitis.

For the purpose of studying the clinical course of mitral stenosis as modified by pregnancy, I have collected and analyzed some sixty-two cases. Many more cases have been referred to, but not reported in such a way as to be capable of analysis.

The clinical course of mitral stenosis complicated by pregnancy can best be appreciated by actual reports of cases.

Case I.[1]—K., aged 28, pregnant for the third time. Heart-disease seems to have occurred after her second pregnancy, when she developed acute articular rheumatism, with pains in the region of the heart. At the seventh month of pregnancy her condition was as follows: Edema of both limbs, the vulva so swollen that the patient is obliged to stretch the limbs apart when she is laid upon the bed. There are also ascites and edema of face. The jugular veins are considerably dilated, and present some flutterings. Dyspnea is so great that the patient is seated in her bed, and scarcely able to speak. The expectoration is frothy, but not bloody or purulent, though a little blood has been expectorated. Complaint is made of nausea, vomiting, headache, vertigo, and loss of consciousness. Throughout the lung are some small and large bubbling *râles;* at the lower part of both lungs the respiratory murmur is bronchial. The heart dulness begins on the left side at the third rib, extends a little beyond the mammillary line, and on the right extends two finger breadths beyond the border of the sternum. The cardiac shock is irregular, and shakes the lower part of the thorax. The sounds of the heart are replaced by a rasping murmur; the second pulmonary sound is accentuated. The urine contains much albumin and mucus, but no casts.

On July 28, there suddenly occurred a gush of amniotic fluid, apparently with some relief to the patient. Delivery was effected in

[1] From H. Fritsch, quoted by Casanova, Thèse, Paris, 1876.

the night without aid. The patient said she felt so weak at the moment of the pains that she could not call her neighbor. Her children slept, and she lost consciousness. When she again became conscious, the child was born. The next day the patient appeared better. On the fourth day the pulse was 60, but the renal affection became worse, caused hydrothorax, and increased the edema, cough, and dyspnea.

Three days before death there was considerable hydrothorax. Death occurred October 21, 1873. At the autopsy the pericardium contained much fluid. The heart was of globular shape and double its natural volume. The left auricle was dilated, the mitral orifice stenosed, so that a finger could not enter. Right auricle and ventricle enormously dilated.

CASE II.[1]—V. R., aged 23, rachitic, was on her way back home from a visit when she was suddenly seized with breathlessness. She was found sitting down and brought to the Hospital Saint Antoine at 3 A.M. Before pregnancy there had been attacks of breathlessness, but never of such intense character. Her general health was good. Dyspnea was very intense, the face bluish, cyanosed, and so were the extremities. Respiration was very frequent, the pulse rapid, small, nearly imperceptible. There were abundant *râles* in the chest, and the pulsations of the heart were violent and hurried.

Dyspnea was relieved by venesection and sinapisms. At 5.45 [A.M. ?] the patient, in spite of orders to the contrary, put her foot on the ground, and fell over upon the side of the bed dead.

Autopsy twenty-eight hours after death. The fetus had been dead several days. No traces of syphilis found. The placenta was normal in dimensions. There was no liquid in the pericardium. The heart was notably hypertrophied. The tricuspid orifice was dilated, measuring 122 mm. in circumference. The aortic valves were normal. The mitral orifice was stenosed, with thickening and eburnation of the free border and slight constriction of the pillars. The orifice scarcely admitted the first phalanx of the index finger; it was not insufficient. The brain was normal.

CASE III.[2]—Patient, aged 34, well until the sixth month of her first pregnancy, when she developed hemoptysis, palpitation, and dyspnea. She remained in good health after delivery until the middle of her second pregnancy, when pulmonary and general edema supervened. Labor was spontaneous at the end of the eighth month of pregnancy. The mother died suddenly six days afterwards of exhaustion and pulmonary edema; the baby one month afterwards.

[1] Obs. by Budin, quoted by Berthiot, Thèse, Paris, 1876.

[2] Macdonald, Angus, Bearings of Chronic Heart-Disease on Pregnancy, Parturition, and Childbed, London, 1878.

CASE IV.[1]—The patient, aged 35, developed hemiplegia, with a certain degree of aphasia, on January 10, 1877. The cause is believed to have been an embolus. The heart lesion probably dates from the confinement immediately preceding. Labor, premature on account of accidental hemorrhage, occurred February 21. There were urgent symptoms during delivery, which were terminated by forceps. The patient recovered.

CASE V.[2]—M. P., aged 26, entered hospital November 29, 1864. She had had palpitation for six years, for which she had twice come to hospital. She never had rheumatism. Had been married four years. The first child was born after she had been married thirteen months. It died in two or three months. She had one miscarriage about ten months before admission. She was confined eight days ago for a seven-months' child, which did not live. At about the fourth month of her last pregnancy her limbs began to swell and became progressively worse. Several hemoptyses occurred during the last month of her pregnancy. Labor was long and painful, and accompanied by much loss of blood.

On December 30 there was great weakness, but no cough or expectoration. The right arm was very edematous, the feet and limbs less so. There were gangrenous scars on the legs. The transverse area of the heart's dulness was increased. There was a prolonged murmur at the apex, commencing with the first sound and continuing during the second and a part of the long silence. The second sound at the base is reduplicated.

On December 1 albuminuria was noted. December 3 the lochia were fetid. The right lung was consolidated behind. The pulmonary condition gradually became worse. By December 13 the sputa were bloody. Death occurred December 16.

Autopsy December 16. Thrombosis of the right brachial, the axillary, external jugular, superior vena cava, and extending into the right auricle. Some clotting in superior vena cava, which is compressed by enlarged bronchial gland. Heart increased in size. The right cavities are much dilated and distended with blood-clots. There are vegetations upon the thickened tricuspid valve. The pulmonary valves are normal. The left side of the heart is eccentrically hypertrophied. Mitral valve very thick; tendons much shortened; borders of valves so welded between them that the elliptical aperture scarcely admits the tip of the little finger. Aortic valves rigid, but almost sufficient, with vegetations upon their convex surfaces. Atheromatous plaques here and there in the aorta; embolic clots in the lungs.

[1] Macdonald, loc. cit.

[2] Malherbe, Étud. Clin., prem. fascic. Nantes, 1875.

Case VI.[1]—C. D., aged 25. Entered Charité, October 18, 1875. Antecedents scrofulous, cicatrices on neck. Scarlatina at 5, then immediately afterwards typhoid fever. At 11, chorea; never had edema or anasarca. Menstruation established at 12. Never had epistaxis, but had palpitation of the heart.

First pregnancy occurred when she was 16. Apparently normal in all respects.

Second pregnancy when 18. During this there was continual loss of blood. However there were no cardiac phenomena, and no attacks of suffocation. Flooding commenced at the second month, and continued until six and a half months of pregnancy, when she was delivered without flooding.

The third pregnancy occurred at 19. Hemorrhages profuse as in the second; moreover, she felt some palpitation. As she was walking she became suffocated and had to stop. Miscarriage occurred at the fourth month. This did not arrest palpitation completely.

Fourth pregnancy occurred in her twentieth year. From the first month palpitation was very violent. At the second there was continual hemorrhage, but no edema. Miscarriage at the fourth month.

Fifth pregnancy when she was 22. It began well. Hemorrhage did not begin until three months before term. Miscarriage threatened, but averted. There was palpitation. Confinement occurred at term.

Seventh pregnancy when she was 24. Profuse hemorrhage and abortion at two and a-half months. Palpitation was very violent.

The eighth pregnancy was characterized by hemorrhage and palpitation. Miscarriage at six and a-half months.

The ninth pregnancy terminated October 11, 1875, with an abortion at two and a-half months, with hemorrhage and palpitation.

When seen early in November, the apex-beat was in the seventh intercostal space. Presystolic murmur at apex, reduplication of the second sound. The pulse was small, slow, and regular.

This case will be referred to again under prognosis and treatment.

Case VII.[2]—No antecedents. No cardiac trouble before pregnancy. In her first pregnancy complained of palpitation from the second month of gestation, which increased and rendered all work impossible. Later, dyspnea was added to these troubles, and a dry cough with hemoptysis and cachexia,—phenomena which grew worse towards

[1] Marty-Sur l'état du cœur a la fin de la grossesse et dans les suites de couches. Thèse, Paris, 1884. Communication of M. Vinanche.

[2] Grassi, Lo Sperimentale, 1876, p. 187. Quoted by Remy, Arch. de Tocol. et de Gynécol., 1891, xviii, 8, pp. 621–631.

the fifth month, when congestion and edema of the lungs developed, with edema of the lower limbs.

The phenomena of asphyxia became worse, and the woman died towards the middle of the fifth month, without being delivered.

The autopsy showed insufficiency and stenosis of the mitral orifice; old endocarditis prior to pregnancy; increase in the volume of the heart; hypertrophy of the left heart; dilatation of the left auricle and of the right ventricle; fatty degeneration of the myocardium; congestion of the liver and kidneys; hydropericardium and hydrothorax.

Case VIII.[1]—A. S., aged 32, had had three confinements at term. Seven or eight years before blisters were applied to the precordia. On admission she complained of weakness, and at the same instant, supporting herself against a bed, became unconscious. There were some slight convulsive movements. The Cesarean operation was performed post-mortem and a living child extracted.

At the autopsy stenosis of the mitral with induration of the valves was found. The orifice was only one centimetre in diameter.

Case IX.—R. B., aged 28, said to have had inflammatory rheumatism in both knees in 1875. Married in 1876, and had three children by her husband, from whom she was divorced in 1883. Appears to have enjoyed good health until December, 1883, when she was admitted to the Presbyterian Hospital of Philadelphia, with shifting pains in the chest, epigastrium, and cardiac region. There was a well-marked mitral murmur, said to be regurgitant, but no fever. The patient was admitted to the obstetrical wards of the Philadelphia Hospital about November, 1885, and shortly after admission began to suffer greatly from cough, which was especially troublesome at night.

Notes taken February 9, 1886, are as follows: Apex-beat in nipple line. Pulsation seen in vessels of the neck. Heart's action irregular and intermittent. The first sound of the heart over the aortic cartilage is altered, but no distinct murmur is heard. Over the mitral area there are a presystolic murmur and thrill, most distinct in the left intercostal space, one inch to the left of the sternum. There was general bronchitis of the large- and medium-sized tubes. The specific gravity of the urine was 1025, and it was free from albumin. The patient steadily became weaker and more short of breath. On February 12 she was seized with a sudden attack of heart-pang and dyspnea. The patient sat up in an arm-chair, with the hands clasped over the heart, gasping for breath, with an anxious expression of countenance, and a small, soft, rapid, hobbling pulse. In about half an hour under treatment the

[1] From Remy, loc. cit.

severity of the attack subsided, but throughout the remainder of the day respiration was embarrassed and frequent, the pulse soft, rapid, and irregular, and the patient distressed and restless.

From 8 P.M. on the 13th to 8 P.M. on the 14th of February the patient had four attacks of heart-failure, with dyspnea, clammy skin, drowsiness, and a frequent, soft, hobbling pulse. She had no such attack of heart-pang as at first. On the 14th she had still another seizure, resembling the other, but accompanied with dizziness, vertigo, and a greater tendency to drowsiness. The face was pale, lips bluish, skin moist, the pulse as in previous attacks. Vomiting occurred once. The feet and legs were edematous. Only two ounces of urine were passed since morning; this was smoky and contained albumin.

Dr. Parvin was notified, with the idea that he might think it proper to induce labor. But labor began spontaneously. Dilatation of the os was hastened with the fingers. The pains were frequent and of good power. The head remained at the superior strait, and when sufficient dilatation was secured the Simpson and subsequently the Tarnier forceps were applied, but the blades slipped. Finding that the cord had ceased to pulsate and that the child was dead, Dr. Parvin decided upon craniotomy, which was performed without laceration of the maternal tissues. The fetus was a female, and weighed 7¼ pounds without its brains.

The patient made a good recovery, notwithstanding the fact that the urine contained albumin and casts. The heart and the secondary pulmonary symptoms improved. A note taken on the 16th marks the absence of the presystolic murmur and thrill, and the presence of a tricuspid murmur, with distention of the veins of the neck, and marked pulsation of the liver. No doubt the right heart had become dilated. The area of the heart's impulse was perceptible over the entire anterior portion of the chest, reaching as high as the second rib, and on both the right and left sides.

On the 17th a note is made of the presence of a systolic murmur most intense over the sternum about opposite the fifth interspace. It is not heard over the apex, and not transmitted into the axilla. In the third interspace to the left of the sternum is heard a presystolic murmur with thrill, not as distinctly as it was one week before. No murmur in carotids, but they pulsate strongly, and so does the liver. The conjunctivæ were yellow.

This patient recovered sufficiently to enable her to go out and attend to some light work. But from this time until her death, December 30, 1890, she was in and out of the hospital a number of times, and served to edify many ward classes. On September 30, 1889, I took sev-

eral tracings of her pulse, which show very well its irregular character. There often would be several ineffectual systoles barely perceptible at the wrist, followed by a full beat, and the heart's action was so irregular that it was difficult to make out the conditions existing.

I kept as close watch of the patient as possible, hoping to see the heart.

At the autopsy the heart was found to weigh fifteen ounces. There were pericardial and double pleural effusions, some recent pericarditis and endocarditis. There was a button-hole mitral, the valves being so agglutinated at the sides that the funnel extended half-way down the normal length of the papillary muscles. The aortic valves were thickened and retracted. All the chambers of the heart were eccentrically dilated.

I have reported this case because it is unique. I know of but one case like it, and that is reported in the thesis of Casanova.[1] Craniotomy was performed by Robert Lee to save the life of a woman with valvular heart-disease (lesion not stated), and suffering with frightful dyspnea, and, apparently, death was imminent.

It does not appear that the fetus was dead before craniotomy was

Pulse Tracing from Case IX.

decided upon. The woman recovered, and a year afterwards was in her usual health.

It is certainly astonishing that in my case a woman suffering so extremely from dyspnea and a dilated heart should pass through a labor lasting ten hours, and terminated by craniotomy. The heart, however, never recovered from the great strain put upon it.

Case X.—Mrs. S. J. L., aged 39. Has two children living,—a boy of 14 and a girl 9 years. Two miscarriages occurred, one between the birth of the boy and girl, and one about two years after the birth of the girl. She was considered to be in very good health until 1888, when she had a hemorrhage said to be from the right lung. She began to lose flesh after that, and had cough with expectoration tinged with blood. She was believed to have lung-trouble. In 1889 she had influenza. Dyspnea has been a prominent symptom from the first. Her feet never swelled until she became pregnant, which was probably in March or April, 1891. Dyspnea gradually became orthopnea by July.

[1] Casanova, La grossesse dans ses rapports avec les maladies du cœur, Thèse, Paris, 1876.

On April 18, she had a severe attack, attributed to "neuralgia of the heart." By September there was edema of the feet.

I saw her in consultation with Dr. Ellinger on October 19, 1891. She was then about seven months pregnant. Her prominent symptoms were orthopnea and great distress in breathing. There was edema of the feet and legs as far as the knees. There was a distinct mitral presystolic murmur and thrill, best heard to the left of the sternum. The second pulmonary sound was accentuated. There was no cyanosis. The patient became more and more uncomfortable, and spent most of her time in a rocking-chair. There was considerable bronchitis, and some edema of the lungs, but no focus of consolidation could be made out. On November 5, premature labor was decided on and carried out, with the woman in her chair. The child (a female) was born on the night of November 6, and lived six hours. Labor lasted thirty-six hours, and was very hard.

The mother lived six days, at the end of which time the attendant had her stand up to wash her, and the patient fell over dead. Unfortunately there was no autopsy.

I have recorded so many cases in detail, because it has seemed to be the most effective way of exhibiting their progress, and, also, so that any comments upon their course could be understood the better. Cases have been selected to show the various phases of the disease. In seven of the ten cases death resulted, and in six there were autopsies, confirming the clinical diagnosis.

In view of the very grave danger in which a pregnant woman may be, if she have stenosis of the mitral orifice, the early recognition of the lesion is of the greatest importance. I am sure that it is more frequent in childhood than is commonly supposed, but am not sure that it is ever congenital. In one case, in a girl aged 5 years and 8 months, the heart-disease, a mitral stenosis, was said to have existed from birth, dyspnea on slight exertion having been noticed from the time the child began to walk. The symptoms in childhood are not very marked, but are suggestive. The child is apt to be pale and delicate-looking, finds that it cannot run and play as other children do, and soon gives up engaging in such sports. It may be disposed to epistaxis, and to attacks of bronchitis. The effects upon menstruation have been studied especially by Duroziez.[1] In general, menstruation is retarded and irregular. In eighteen women who seemed to have had heart-disease from youth, but have had no children, the average age for first appearance of menstruation was 17 years and a fraction, the maximum being 23 years. Of 15 childless women, only 1 menstruated at 11; 2 at 14; 2 at 15; 5 at 16; 3 at 18; 1 at 20; and 1 at 23. The irregularity is linked with

[1] Archives de Tocologie, 1875, II, 321.

hemoptysis, which is found in most observations. Flooding may occur with menstruation, and a certain number of patients are sterile.

The physical signs of mitral stenosis consist of the murmur, reduplication of the second sound, the thrill, evidence of enlargement of the left auricle and right ventricle, and pulse tracings.

The murmur is usually best heard a little above and to the right of the apex-beat. It is usually audible, however, at the apex, and sometimes at the point of the shoulder. It is not transmitted. It occupies the diastole, especially the latter part of it,—the presystole, and hence in this country is commonly called a presystolic murmur. In quality the murmur is peculiar and characteristic. It consists of a longer or shorter rolling sound, the individual elements of which are harsh, grating or rasping. The murmur ends just before or more frequently exactly with the first sound, which is sharpened. An abnormal sharpening of the first sound preceded by a slight roughening, may be the only change which attracts attention. Its significance is not appreciated sufficiently. A peculiarity of mitral stenosis is that both murmur and thrill may be absent at times, or sometimes one is absent and not the other. Often the patient must be made to take some exercise before the existence of the murmur becomes unmistakable.

As reduplication of the second sound is rare from other causes, and occurs in about one-third of the cases of mitral stenosis, its presence is of importance in diagnosis. Enlargement of the left auricle is strongly suggestive of mitral stenosis. It can be made out by careful percussion with an artificial plexor and pleximeter.

In order to study the consequences of this cardiac lesion in pregnancy I have collected and tabulated 62 cases. As far as possible cases of pure stenosis have been selected, but cases of stenosis and insufficiency in which stenosis was the predominant lesion have been included. Of the 62 cases 23 died and 37 recovered; in 2 the result is uncertain. In the number of deaths are included all who died during pregnancy, at confinement, or within three weeks afterwards. In the list of recoveries are several patients who died within a few months after their confinement. In the 14 cases classed by Macdonald as mitral stenosis, 9 are said to have proved fatal (64.4 per cent.); but one of them died three months and another nine months after confinement. Porak[1] refers to 13 cases, 8 of which proved fatal (61.5 per cent.); of 22 cases of mitral stenosis and insufficiency, 10 were fatal (45.45 per cent.). Remy[2] has collected 19 cases of pure stenosis, 11 of which were fatal (57.9 per cent.). The mortality in double mitrals is given as 40 per cent. Seven out of 8 of Hart's cases were fatal.

[1] De l'influence reciproque de la grossesse et des maladies du cœur. Thèse, Paris, 1880.
[2] Loc. cit.

I am inclined to think that the figures given by Macdonald, Porak, Hart, and Remy are too high for the average case. The lesion may exist before puberty, develop in adolescence, or as the result of repeated pregnancies; it may also result from acute illness after marriage and pregnancy.

It is reasonable to expect a difference in effect depending upon the duration of the lesion. In the cases here presented it has been impossible to ascertain this accurately. In 23 of my fatal cases, 10 were primiparæ; in 4 death occurred in the second pregnancy. These figures show what a very large proportion of the deaths occur in first and second pregnancies. The explanation probably is that the lesion had existed for some years, and in all probability caused definite symptoms before marriage.

As to the time of death, 14 of the 23 cases died at periods ranging from sixteen hours to twenty-two days after delivery. Ten of the cases died in the first six days, and most of them in the first day or two. Three died immediately after labor. Seven cases died during pregnancy undelivered. Only 2 died during confinement. The cause of death so soon after delivery is doubtless acute dilatation of the right ventricle, caused by overdistention with the blood squeezed out of the uterine sinuses.

Abortion, miscarriage, or premature labor occurred at some time in the history of 26 of the cases; in 12 of the cases that ended in recovery, and in 14 of those that proved fatal. These figures are in keeping with the statement of Duroziez, that miscarriage is frequent, children often being born at seven and a half months. He adds that they often die at birth or a few days thereafter. My statistics are incomplete as to the fate of the child. In 11 cases it is said to have been born dead or to have died in a few days. Of course, in the 7 cases in which the mother died undelivered the child probably perished, except in one case in which it was extracted living by post-mortem Cesarean operation. It is altogether likely that the child perished sooner or later in a number of the other cases, so that if we include the cases in which the child is sacrificed by the induction of premature labor or abortion we shall not be far from the truth in assuming that at least half of the embryos perish. One woman who had been pregnant nine times had six miscarriages; another who was six times pregnant had five miscarriages; and still another who had been pregnant ten times miscarried four times, each time with a boy. In another case the patient was pregnant twelve times; she lost four children by abortion or miscarriage, and three were born dead at full term. Every one of these four patients recovered. It would seem that the miscarriage might have been the means of saving the mother's life.

The most prominent symptoms of mitral stenosis in pregnancy are pulmonary. They are distinctly mentioned or implied in 52 of my cases, and possibly were present in a still larger number. Cough, dyspnea, and pulmonary congestion, with bronchitis, are the most common. They appear usually after the fourth month of pregnancy, and increase in intensity as pregnancy advances. Occasionally they appear earlier than the fourth month, but generally do not become marked until the sixth month or later. The cases already reported illustrate the severity of the pulmonary symptoms. In a few cases the symptoms resemble closely those of acute pulmonary tuberculosis. The similarity is rendered more striking by the existence of hemoptysis, which occurred in 20 of the 62 cases. It is interesting to note that it was more common in cases ending in recovery than in fatal cases. Hemorrhage from the lungs or uterus occurred in 18 of the 37 favorable cases, and only in 8 of the fatal cases.

General edema is not a common symptom of mitral stenosis. It occurs only in advanced stages of severe cases. It is mentioned in 16 of the 62 cases; 8 of the patients recovered and 8 died. Of the 8 that recovered 2 died in three months and 1 in two months after delivery.

Albuminuria also is rare. It occurred in 7 cases, 4 ending fatally. In one of the 3 favorable cases it was only slight.

Convulsions or unconsciousness, with spasmodic movements, occurred in 6 cases, often immediately preceding death.

Cardiac pain, at times amounting to severe angina, occurred in 6 cases.

Palsies apparently embolic in origin occurred in 3 cases.

Prognosis.—From what has been said, it is clear that mitral stenosis is always a serious complication of pregnancy. If we could have definite knowledge of the duration of the lesion before pregnancy began, and of the antecedent condition of the heart, we should be in a better position to estimate the chances of the patient. It will be remembered that of the 62 cases which form the basis of this paper, 23 died and 37 recovered; 4 of the 37 patients died within nine months after delivery. If these four are included among the fatal cases, following Macdonald, the mortality becomes 45 per cent. Of 100 cases (made up of these 60, 13 reported by Porak, 19 by Remy, and 8 by Berry Hart), 53 died and 47 recovered,—a mortality of 53 per cent.

Porak, in 13 cases presenting aortic lesions, finds the mortality 23.07 per cent. In 22 cases of mitral insufficiency it was 13.66 per cent. In 13 cases of mitral stenosis it was 61.50 per cent. In 22 cases of mitral stenosis and insufficiency it was 45.45 per cent.; and in 22 cases presenting complex lesions it was 50 per cent.

It will further be remembered that 10 of my fatal cases occurred

in primiparæ and 4 in the second pregnancy. I believe that a young married woman pregnant with her first child, who has a mitral stenosis which showed pretty constantly failure of compensation, such as breathlessness on exertion and attacks of palpitation, before marriage, is in very great danger of death during the latter part of pregnancy and soon after labor. The probability of death increases if the lesion has existed from puberty or for a number of years before marriage, and if it has caused marked symptoms. Such a patient is in as great danger from death with her first baby as a patient with nephritis. Some lives will be saved if physicians come to appreciate the fatality of this lesion and warn their patients not to marry. Such warning should be timely,—that is, if possible, before matrimony is contemplated. If the patient is already engaged, the physician may be asked for advice, but it is unlikely that his advice will be followed. Marriage in these cases of mitral *disease* should be advised against, not only because pregnancy will probably be fatal to the mother, but also because there is the added probability of abortion or a still-born child. Some patients will be swayed more by consideration of the effect upon the child than by the effect upon themselves.

On the other hand, if the lesion gives rise to no symptoms, marriage need not necessarily be advised against. For while the heart is certain to be the worse for the pregnancy, it is likely that under proper management the patient may pass through one or more pregnancies, and it must be remembered that there may be weighty considerations in favor of marriage.

Unfortunateiy most of the cases will be seen for the first time when the patient is pregnant. Here the prognosis must depend upon the condition of the heart and the ability or willingness on the part of the patient to submit to judicious management.

The condition of the heart is to be gauged by the physical signs and the subjective symptoms. If both sounds of the heart are sufficiently strong, if there is no increase of cardiac dulness to the right of the sternum, no pulmonary congestion or edema of the feet; and if, moreover, the patient is not distressed by breathlessness, palpitation, oppression, or cardiac pain, then we may assume that the heart is in good condition. Certainly there is no immediate danger. But a pregnant woman with mitral stenosis is never free from danger. Dilatation of the right heart is increasingly liable to occur after the fifth month of pregnancy. Many women pass through the first half of pregnancy very comfortably. Again it must be remembered that sudden acute dilatation may occur at any time from a sudden strain, and that acute endocarditis or pericarditis is a possibility. The patient needs to be under the watchful care of a physician from the beginning of pregnancy to the end of the puerperium.

But if, on the contrary, the heart-sounds are weak; if there is a tendency for the sharpened first sound to become blurred, with a suggestion of a systolic murmur, while the second sound is faint or absent, if a systolic tricuspid murmur develops, then we have to do with a failing heart. The further evidence of this is increase of percussion dulness to the right of the sternum, indicating dilatation of the right ventricle. Important confirmatory signs are a tendency to congestion of the lungs, with cough and bronchitis, breathlessness, palpitation, possibly hemoptysis and cyanosis. Practically, in mitral stenosis, the heart is as strong as the right ventricle. In other words, as long as the right ventricle is able to overcome the marked tendency to venous stasis in the lungs, just so long the patient can keep up. When it fails, then edema of the lungs with its well-known consequences develops.

The period of pregnancy in which failing compensation first becomes manifest is very important in prognosis. The earlier it appears the greater the danger. Pulmonary symptoms appearing first at the sixth or seventh month of pregnancy are of much less grave augury than the same symptoms appearing at the second or third month; though they are grave enough whenever they appear.

The ability of the patient to spare her heart is a very important factor. If she can make her health the first consideration always, from the beginning of pregnancy, the result should, all things being equal, be better. But if she must climb stairs, care for herself and others, and attend to the multifarious duties of housekeeping, the heart is taxed doubly.

Specially unfavorable symptoms are edema of the feet, effusion into the cavities and albuminuria. Bleeding, which is usually from the lungs, but may be from the nose, is rather favorable than otherwise.

The statistics show that grave as is the danger during pregnancy, the majority of the patients who die succumb soon after delivery. Hence, the prognosis of this period should be most guarded. If the patient have a tendency to bleed, this is favorable. In Case VI, the cardiac symptoms appeared in the third pregnancy. The patient was pregnant nine times, and had six miscarriages. Flooding occurred in nearly every pregnancy. Peter[1] reports a case in which the patient seems to have had cardiac disease since childhood. In her first pregnancy she suffered from bronchitis, pulmonary edema, and hemoptysis. The child was born dead. In her second pregnancy miscarriage was prevented. Her condition was desperate. Peter practised free bloodletting in both pregnancies, and the patient recovered. It will be remembered that bleeding occurred in eighteen of the favorable cases,

[1] L'Union Médicale, 1872, XIII, 278.

and only in eight of the fatal cases. I believe that a full appreciation of the value of blood-letting for the relief of the engorged right heart will modify the mortality in this disease.

The prognosis as regards the fate of the embryo is worse than that for the mother. Abortions, miscarriages, and premature labors are common, and in several instances the child has died within a short period, after birth at full time. Thus, in the 62 cases, abortions, miscarriages, premature births, or dead children are recorded 48 times. If we add the 6 cases in which the mother died undelivered, we have 54 fatalities in 62 women, with 199 recorded pregnancies; or 1 infantile fatality in every 3⅔ pregnancies. We cannot assume, however, that every miscarriage was due to heart-disease in the mother. On the other hand, it is probable that early abortions and miscarriages are more common in all classes of persons than they are reported to be.

Treatment.—As already stated, a woman with mitral stenosis which exhibits marked symptoms ought not to marry, and if married she should not become pregnant. Unfortunately, they both marry and become pregnant. In a few cases pregnancy may be passed with no disturbance beyond cough and breathlessness on exertion. Such patients may never apply for treatment. They require nothing but rest and protection against overstrain of the heart during pregnancy. After delivery bleeding should be encouraged, ergot never given, and the patient kept carefully in a recumbent posture for two weeks, to allow any existing dilatation or tendency thereto to be overcome by hypertrophy.

In cases presenting more decided symptoms the treatment will vary somewhat, depending upon the period of pregnancy, at which they appear, and their severity.

If bronchitis and a tendency to pulmonary stasis appear as early as the second or third month the outlook is grave. The object should be to carry the patient safely until the child becomes viable, and then induce premature labor. Cardiac tonics will be required; digitalis, strophanthus, coffeine, strychnine, and alcohol are especially useful. Berry Hart regards strophanthus as much better than digitalis; it acts probably upon the right as well as the left heart. When heart tonics have to be given over a long period, I believe better results are secured if they are given for four or six weeks continuously and then stopped for an equal period, or substituted by others. Digitalis particularly has seemed to me more effective when administered intermittently.

If the pulmonary trouble advance to the stage of edema, with orthopnea and hemoptysis, in spite of the treatment just indicated, then the patient should be purged with calomel, turpentine stupes applied to the bases of the lungs posteriorly, and dry cups over the pre-

cordia. The object of these measures is to carry off a certain amount of fluid by the intestines and kidneys, and so relieve the edematous lung, and at the same time to withdraw to the surface blood from the lungs and heart and relieve their engorgement. It may be proper to add, by the way, that in such sudden conditions of the body absorption from the stomach is slow and uncertain, and often strychnine hypodermically is much more effective than when given by the mouth. If improvement follow this treatment, the question of inducing premature labor should be considered seriously. In many cases miscarriage or premature labor takes place spontaneously, most probably as the result of hemorrhage separating the placenta. This is nature's method of getting rid of the cause of the cardiac embarrassment, and is an indication, it seems to me, that labor should be induced when dangerous pulmonary symptoms persist in spite of suitable treatment.

Before labor is induced, or when at any time the pulmonary and right heart engorgement become still worse, particularly when there are constant orthopnea, cyanosis, edema of the feet and legs, an irregular pulse and weak second pulmonary heart-sound, blood-letting should be practised. This may be done best by venesection, sufficient blood being withdrawn from the arm to relieve the laboring heart. Relief will be manifest by lessening of oppression, disappearance of cyanosis, and the extremely anxious, weary expression of the face, and by less difficulty in breathing. Lessening of pulmonary edema will be shown by increase of fremitus and of respiratory murmur, lessening of dulness on percussion, and by the *râles* of edema becoming fewer and drier. If the patient object to venesection, leeches may be applied over the liver or in the epigastrium. Sometimes a copious hemoptysis or epistaxis may obviate temporarily the necessity for further blood-letting.

My attention was first directed to the value of blood-letting in cardiac disease by a case that happened when I was resident physician at Girard College. A boy suffering with mitral regurgitation and dilated heart, with general anasarca and cyanosis, was daily expected to die. His case was looked upon as hopeless. Copious and repeated epistaxis occurred spontaneously, however, and from that time the boy began to recover. The heart hypertrophied, and with a big ox-heart he was dismissed to his section. I have seen him run and jump as though he had no heart-disease.

There is no doubt as to the great value of blood-letting in suitable cases. It relieves the engorged right heart, and by lessening the volume of blood upon which it must contract, permits of compensatory hypertrophy. The value of loss of blood is shown practically by the statistics already quoted,—hemorrhage in some form occurring in 18 of the 37 favorable cases and in only 8 of the fatal cases.

I have suggested blood-letting before inducing labor, because it is immediately after labor that the dilated, overstrained right ventricle and auricle are liable to be paralyzed by the reflux of blood squeezed from the uterine sinuses. It seems wise, therefore, to relieve them beforehand, and to place them in a better condition to withstand the inevitable strain. There is the added reason for venesection before labor that after labor in these cases hemorrhage from the uterus is rarely considerable. Of course, the same argument applies to labor at full time, if the symptoms are grave enough.

During labor chloroform should be administered if the pains are severe, and to prevent the severe bearing-down pains of the final stage. Delivery should be with forceps in severe cases.

After labor, the special danger that menaces the patient is sudden paralysis of the heart from overdistention of the dilated and weakened right auricle and ventricle. This condition has been insisted upon especially by Dr. D. Berry Hart. Moreover, the patient, even though she pass through labor safely, is liable afterwards to sudden pulmonary edema. The treatment for this is the same as that already pointed out. It should be anticipated, if possible, and every precaution taken to prevent any sudden strain upon the heart, such as sitting up in bed or any unnecessary motion. No ergot, quinine or any other remedy calculated to lessen post-partum bleeding should be administered. On the contrary, bleeding should be encouraged. The patient should not be left alone a moment during the first day or two after confinement, and the physician should always be within call. Sudden severe edema should be met with appropriate treatment, and especially venesection. Danger continues for at least three weeks after delivery. The patient during all this time should be guarded against any strain or sudden shock, should remain in bed, and in a recumbent posture, if breathing is possible in that position.

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Longevity and Ovariotomy.

Dr. Harris, of Philadelphia, has written to Sir Spencer Wells to inform him that there is living, and in excellent health, an unmarried lady, 81 years of age, for whom the late Dr. John L. Atlee performed ovariotomy in June, 1843, more than fifty years ago. Dr. Harris asked if this case can be paralleled in England. This was Dr. Atlee's first ovariotomy. He had eighty cases; he operated on seven in the year he became 84 years of age; he performed tracheotomy when nearly 85, and died when nearly 86. We are indebted to Sir Spencer Wells for the interesting facts furnished by Dr. Harris.—*British Medical Journal.*

A CASE OF ABDOMINAL HYSTERECTOMY IN WHICH THE URETER WAS RESECTED AND IMPLANTED INTO THE BLADDER.[1]

By Charles B. Penrose, M.D.,

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I report this case because the immediate implantation into the bladder of a ureter, which has been divided during a celiotomy, is a rare proceeding.

The patient was a white woman, 40 years old, who had a scirrhous cancer of the cervix uteri. The growth extended as high as the internal os, and infiltrated the left broad ligament, in a dense hard mass, to a distance of about one inch from the cervix. There was no involvement of the vagina. There were no symptoms of obstruction of the ureter.

Celiotomy was performed at the Gynecean Hospital in July, 1893. It was found that the left ureter passed directly through the hard mass in the left broad ligament; and in order to remove completely all diseased tissue, it was necessary to excise about one inch of the ureter, —the portion involved in the broad ligament.

After the uterus had been cut away at the vaginal junction, the distal end of the ureter was ligated with silk; the vagina was closed; the peritoneum was sutured over the seat of operation as much as possible; and the proximal portion of the ureter was then implanted into the body of the bladder. The operation was similar to, and was derived from, that used by Dr. Van Hook for uniting a ureter after complete transverse division, by lateral implantation of the proximal into the distal portion.[2] An incision was made antero-posteriorly in the body of the bladder somewhat less than one-half inch in length. A needle armed with fine silk was passed through the bladder-wall from without in, at a point about one-third inch from the edge of the incision on the right, and brought out through the incision. It was then passed through the right wall of the ureter close to the extremity, carried back through the incision in the bladder and passed through the bladder-wall from within out, close to its point of entrance. A similar suture was passed on the left side of the incision in the bladder and through the left side of the wall of the divided ureter. Traction on these sutures dragged the ureter into the bladder, and when tied, they held it in this position.

The loose peritoneum, which formed a partial investment to the

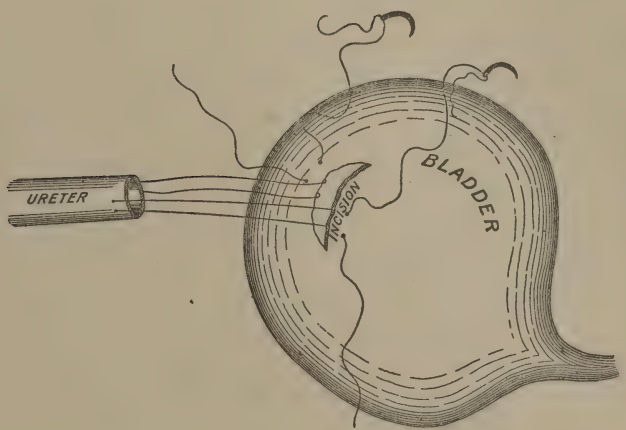
[1] Read before the Philadelphia Academy of Surgery, March 5, 1894.

[2] Journ. Am. Med. Assoc.. March 4, 1893.

ureter, was drawn down and sutured to the peritoneum of the bladder by a continuous silk suture around the line of union of ureter with bladder. The abdomen was closed without drain. A soft rubber catheter was introduced through the urethra and was retained for three days. The patient made an unusually easy recovery.

There were no symptoms of bladder or renal disturbance. The quantity of urine passed was as follows: 10 ounces in the first 24 hours; 26 ounces in the second 24 hours; 22 ounces in the third 24 hours; and 38 ounces in the fourth 24 hours.

She left the hospital twenty days after operation. Her physician wrote me in December that she was perfectly well and doing her own housework. He wrote again in February,—over six months after the operation,—that she was suffering with pain in the right iliac region,—perhaps a recurrence of the disease.



She has at no time presented any symptoms whatever of disease of the urinary organs.

Our text-books on surgery advise that, in case the ureter be torn or cut across during the removal of an abdominal tumor, the renal end must be brought out through an opening made for this purpose in the loin. And in some instances nephrectomy has been performed for the relief of such an accident.

The clinical and experimental researches of Dr. Van Hook, of Chicago (paper read at the Forty-fourth Annual Meeting of the American Medical Association, June, 1893); a recently-reported case of Dr. H. A. Kelly, when a divided ureter was immediately united by lateral implantation of the proximal into the distal portion, and the case just

reported, go to show that the advice of our surgical text-books should be modified; and that, if the patient is able to endure a slightly prolonged operation, and the anatomical conditions are suitable, it is better immediately to implant the proximal portion of the ureter into the distal portion, or into the bladder.

ALCOHOLIC PARALYSIS WITH FATAL HEMATEMESIS.[1]

By I. M. Shepherd, A.M., M.D.,

Trenton, N. J.

The earliest account of alcoholic paralysis is said to have been given by Dr. Jackson,[2] of Boston, in 1822, and confirmed by Magnus Huss, of Stockholm, in 1849. The lesion of the nervous system associated with this paralysis was proved by Lancereaux, in 1881, to be a multiple peripheral neuritis.[3]

The microscopical examination reveals nerves completely degenerated, their axis cylinders and white substance of Schwann having completely disappeared, tubules shrunken and atrophied, and may be completely empty or contain a granular and molecular *débris*, which is plate, or in the termination of the sensory nerves Ottinger[4] claims must remain for the present an unsettled question, in that not as yet a sufficient number of anatomical examinations have been made. The muscles appear smaller in volume, lighter in color, more friable in consistency, striæ less visible, granular degeneration. Among the pathological changes in the organs is the frequency of tubercle in lungs.

Etiology.—In England, 75 per cent. of cases occurred in women. Eight cases in Germany were men drinking poor, strong liquors, and especially those containing fusel oil.

Wilks and Lancereaux claim that the essential oils contained in liquors are the toxic agents, those drinking only wine are supposed to be exempt.

In that the whole subject of alcoholic paralysis is of comparatively

[1] Read before Mercer County Medical Society, October, 1893.
[2] Suckling: Amer. Journ. Med. Sciences, 1888.
[3] Bramwell.
[4] Sur les Paralysis alcoholique, Paris, Thèse, 1885.

recent date, and as I expect to draw largely upon data at hand on this subject, I do not therefore claim any originality in the facts as brought in this paper, and should I in any way neglect to mention their source, I trust I may be pardoned for my seeming neglect, as my sole object is to bring before the profession a case of alcoholic paralysis which has occurred to me in my early practice, thereby trusting that by a repetition of other cases herein cited, it may be instructive to those whom the subject-matter is new, while, on the other hand, to those who have seen many cases it may be the means of adding one more to their literature.

Magnus Huss, in his great work published in 1852, describes the symptoms under five distinct types, according to the predominant symptom present in any case as (1) paralytic; (2) anesthetic; (3) convulsive; (4) epileptic; and (5) hyperesthetic. In 1864, Lancereaux[1] has systematically described the form of paralysis due to alcohol. In 1867, Leudet reported cases of the hyperesthetic form, with neuralgic pains, muscular weakness, ataxia, anesthesia, with cerebral symptoms present unstained by osmic acid.[2] Whether the lesion starts in the motor end in some cases. In 1868, Dr. Reginald Thompson reported a case of paralysis, perhaps due to alcohol. In 1872, Dr. S. Wilks[3] claimed that he had seen many cases of paraplegia in ladies addicted to alcohol, and described as symptoms, severe pains in the limbs, wasting, numbness, anesthesia, and diminished power of movement. In 1879, Westphal described a peculiar form of walking bearing a certain resemblance to locomotor ataxia. In 1881, Lancereaux[4] published a number of cases in which the symptoms were sharp pain in legs, followed by a combination of anesthesia and hyperesthesia. In 1883 the same author describes the paralysis as being symmetrical, attacking either the upper or lower extremities, gradually extending to the body; the lower extremities are always more affected than the upper, and the extensors more than the flexor muscles. In 1882, Dr. Fisher[5] reported two cases. In 1883, Dr. R. Glynns[6] reported several cases. In 1884, Dr. Broadbent reported a case in which it attacked especially the extensors; knee-jerk was absent, no pain or hyperesthesia; hands and feet pale, puffy, and purplish. Dr. Buzzard reported a number of cases, calling attention to the lancinating pains and muscular atrophy, which were present in 1884. Dr. Löwenfeld[7] reported two cases in same year. J. Déjerine[8] published

[1] Dictionnaire Encyclopédique des Sciences Médicales.
[2] Clasite Annal., IV. 1879.
[3] Lancet.
[4] Gazette Hebdom., No. 45, 1887.
[5] Archiv für Psych. und Nervenkrankheiten, Vol. XIII.
[6] Liverpool Medico-Chirurgical Journal.
[7] Archiv für Psych. und Nervenkrankheiten, Vol. XV.
[8] Archiv. de Physiologie et Pathol., No. 2, 1884.

two cases similar to those of Fisher's, but which he considered as a variety of locomotor ataxia. Also Dr. Krüche[1] published an article pointing out the great similarity of this form of disease to locomotor ataxia. In the same year, Drs. Moeli and Dreschfield, Charcot and Fèrè each published cases of alcoholic paralysis, and all claim that the muscles of the face are never involved.[2] For further history of cases, I would refer reader to Dr. R. Schalz's critical essay on alcoholic paralysis.[3]

From the number of cases reported, the chief symptoms may be summed up as follows: Neuralgic pains, paresthesia in legs, muscular weakness, hyperesthesia, anesthesia, rapid atrophy, with pain on pressure to muscles; together with these motor and sensory disturbances, there is ataxia, tendon reflexes are abolished, and vaso-motor symptoms, as edema and mental disturbances.

Diagnosis.—The following diseases are among those of most importance which must be distinguished from alcoholic paralysis:

(1) Locomotor ataxia, in which we have loss of knee-jerk, loss of co-ordination, lancinating pains in limbs and viscera in both, but the Argyl-Robertson pupil, girdle pains, and Charcot's joints are not found in alcoholic paralysis. In the latter, the paralysis is soon made clear by wrist-drop and foot-drop, with tenderness of calf muscles.

(2) Polio-myelitis, anterior acute. Here we find no sensory disturbances, such as anesthesia or paresthesia, and the muscles paralyzed are those physiologically associated, while in alcoholic paralysis it is an anatomical one.

(3) Acute ascending paralysis. This begins in the feet, and gradually spreading upward, involves the trunk, whereas, in alcoholic paralysis, the extensors of the forearms are the first muscles in the upper extremity to become involved, the trunk-muscles escaping, while in the former, sensation is usually not involved nor are trophic changes noted.

(4) Spinal meningitis. Here we find intense pain in back, radiating into the limbs; muscles of back rigid, and body often thrown into a state of opisthotonos; no cerebral symptoms; reflexes first increased, and involvement of viscera will distinguish it from alcoholic paralysis.

(5) Myelitis. In this we have rapid loss of power, followed by loss of control of bladder and rectum, and in a few days bedsores are manifest over parts subjected to pressure; while in alcoholic paralysis these are exceptional.

Prognosis.—Usually favorable. Cause of death in my case, I think,

[1] Deutsche Medizin. Zeit., 1884.
[2] Hun Amer. Journ. Amer. Sciences, 1885.
[3] Neural. Centralb., 1885.

was due to hematemesis, as may be seen from the following report of case:[1]

Mr. C. C., aged 25, sent for me on October 21, 1892, at which time he complained of "chills and fever," which lasted a few days only, this was followed by persistent vomiting and great pain on pressure over stomach; tongue coated, with bad taste in mouth; eructations of gas with ejections, first consisting of food, afterwards a clear, watery fluid, and slimy mucus (not examined chemically); constipation marked; headache; no fever; pulse 80, with persistent cough; was confined to his room until November 2, 1892.

Treatment.—A careful and systematic diet was tried with great difficulty, as he would not take milk in any form, or beef-tea, etc. Was placed upon malted milk, but rebelled. Kumyss was then tried with some little success. Finally, beef-peptonoids and coca, medicinal bismuth subnitrate, cerium oxalate, and cocaine, together with strychnine, acid. muriat. dil., and tincture cardam. comp., with some little success, when he was placed upon strontium bromide, and on November 5, 1892, there seemed marked improvement in his gastric symptoms. On November 10, he complained of numbness and tingling in limbs, and, using his own words, said he thought he was going to have another attack of paralysis, having had his first attack June 2, 1892, cause of which was exposure after scarlet fever. Treatment at which time consisted of strychnia, iron, arsenic, with electricity systematically applied with rapid improvement, so that on August 3, 1892, was able to attend work, from which time up to October 21 enjoyed good health. Referring to notes taken on November 16, when his predicted paralysis occurred, I find: Sharp-darting pains like pins and needles shooting down arms and legs, with the above gastric symptoms more marked. Family history good, save that one brother has had paralysis (non-alcoholic). Patient has always worked hard and enjoyed good health; has had no venereal disease; always been a constant drinker, although never had delirium tremens.

Physical examination, a man of strong frame and well nourished. Abdominal examination negative, save great epigastric tenderness. Thoracic examination negative, except that a mitral systolic murmur could be distinctly heard and transmitted into axilla. At this time was unable to stand. Paralysis first involving legs; extensors more affected than flexors; wrist-drop well marked; muscles sore when grasped; hands and feet swollen and congested; pupils normal; grasp of hands weak; hyperesthesia and anesthesia in different regions; patellar reflex absent; ankle clonus absent; foot-drop; no decided atrophy of muscles of arms or legs. Temperature 98.5°; pulse 100.

[1] Since reporting the above case, I have had another under treatment, Miss N. H., age 35 years, which resulted in recovery.

November 17. Great difficulty in breathing; vomiting; temperature 98.5°; pulse 100.

November 18. Face and neck flushed from clavicle; complains of left hand burning while right seems cold; vomiting; temperature normal; pulse 120.

November 19. Still complains of distress in chest; delirious; 98.5°; pulse 125.

November 20. Eruption, greatest at elbow of right arm; can be seen also on left arm and scattered over chest and along spine; disappears on pressure; bright red in color, slightly elevated, various sizes; vomiting blood; temperature 98.5°; pulse 110.

November 21. Vomited blood containing two clots three inches in length or about size of one's finger; eye symptoms manifest in intolerance to light; temperature 98.5°; pulse 110.

November 22. Vomited blood at three different times through the day, containing larger clots than the above; quantity not measured, approximately one pint at each time; temperature normal; pulse 125.

November 23. Still vomiting large quantities of blood, but containing no clots; temperature normal; pulse 120.

November 24. Vomiting checked; at 6 P.M. complains of great dyspnea; temperature normal; pulse 120.

November 25. Deafness; chill at 1 P.M.; temperature at 5.30 P.M. 105°; pulse 132; no vomiting.

November 26. Complained of burning sensations throughout body; bit at sponge placed to mouth; died 1 A.M. Autopsy not granted, but a general atrophy of muscles of arms and legs was evident.

Treatment from November 16 to 25 was directed to allay vomiting and regulate heart's action, together with nutritive enema as the case required.

THE RELATION OF PELVIC DISEASE AND PSYCHICAL DISTURBANCES IN WOMEN.

By Charles C. Fowler, A.B., M.D.,

Associate Professor of Gynecology, University of Southern California.

The writer is familiar with the fact that in discussing this subject he at once confronts the Alienist, who believes that this ground is sacred to him, and should not be trod upon by a gynecologist.

It is, however, by no means this paper's object to antagonize the psychiatrist, or to in any way jeopardize the author by encroaching upon another's field. To say where the work of one begins and that of the

other ends is too neat a question to be definitely decided, for the line that divides their work is seemingly a geometrical one.

The only way to intelligibly manage the nerve-storms or insane conditions that complicate or are complicated by pelvic disease is for the two specialists to go hand in hand and protect each other from the dangers of meddlesome treatment.

I am well aware that women have other organs in their anatomy than those of the pelvis; and I am not ready to claim that every nervous or diseased state is due to some derangement of these organs. The reproductive apparatus is, however, more closely linked with the nervous system than any other part of the human anatomy; and while I cannot voice the sentiment of the one who says that "Woman is a woman because she has a womb," I do believe because women have tubes, ovaries, and uteri, which have to accomplish the great physiological duties at puberty, during gestation, and at the grand climacteric, that they are more subject to profound mental troubles.

When Dr. Goodell's article, entitled "What I have learned to unlearn in Gynecology?" appeared in the *Medical News*, a few years ago, the *Alienist and Neurologist* thus discussed the subject: "Certainly this is good news at last for the poor spayed, pessaried, douched, needlessly cauterized, and anatomized women. Henceforth she is to be recognized as a being that may be ill somewhere else than in her genitalia, requiring at times treatment elsewhere than in her womb. She now is to be recognized as a being subject to nerve strain and brain fag like a man, and no more liable to be oöphorectomized." Dr. Goodell stated in the same paper that "Now neurology and gynecology join hands in the rational treatment of woman." This certainly is the position taken by every scientific man, and we want to loosen the chains that bind us to our narrow spheres of special treatment. The old ideas, so often aired without foundation, that the gynecologists invent instruments by night and use them by day, or that they run about with scalpel and forceps to remove the ovaries of every woman that happens their way, we do not consider worthy of notice; for if this branch of the profession, that has in the past few years been represented by some of our ablest and most conscientious men, is worthy of such criticism, then Sims, Hagar, Battey, Barker, Emmett, and others are quacks and the science of medicine a humbug. Let us recall the statements as made by Dr. Skene, who told us no new story when he wrote that "Imperfect development of the ovaries not only modifies the physical peculiarities of the individual, but also retards the development of the higher nerve centres." "A very large part," he further says, "of the brain and nerve-power is devoted to reproduction, and if that function is never established, because of the

absence of ovaries, the brain and nervous system are never fully developed. The history of a great many cases of insanity is closely related to a defective ovarian system."

If, then, the perfection of the nervous system depends upon a perfect reproductive apparatus, if an imperfect ovarian development is a predisposing cause of insanity, does it not stand within the bounds of reason to say that, if this responsible organ become diseased and is rendered practically imperfect, it may reflexly affect that part of the system for whose perfection it has been responsible? Should we not go still further and say that this reflex action, sending continually impressions of pain to the brain-centres, destroys their function, and instead of being a symptom of a distant lesion, becomes a disease of its own? The superintendents of insane asylums to-day cannot show in the majority of their insane patients after death the slightest lesions to account for the mental state. They often find lesions in other parts of the body, but when called to their attention they are ready to say that they are only coincident with the mental condition. The brain we look upon as the organ of sense, receiving impressions and sending out expressions of pain, fear, pleasure, etc. If it were not for the nervous wires, impressions would not be conducted to the centres any more than would telegraph messages reach their destiny should their conducting media be destroyed. We do not contend that pelvic diseases alone account for all cases of insanity, but we hold to the fact that this is one of the conditions that lead to this woful state. Then, if we decide that a certain mental state is consequent upon a certain diseased condition of ovaries and tubes, should we go on treating the symptom until the symptom is transformed into a disease of its own? I firmly believe, aside from certain forms of mania where the brain is easily the prey of insanity due to certain hereditary tendencies, that early operative interference will, in the great majority of cases, restore these people to their former mental state. Remember this is not so much a plea for asylum patients, but is distinctly urged in order to keep patients from entering such places. We find that our brother Alienist has treated a woman for several years, who has gradually grown worse; he then calls in a surgeon to perform the Battey operation for some old ovarian lesion. The operation proves a failure, and this alienist joins the rest of his brothers in condemning pelvic surgery. I claim that in such a case the surgeon has been called too late, for the nervous state is now a chronic trouble, and you might remove all the organs from clitoris to ovaries and you would not affect the condition more than to remove, possibly, the local pain.

Is it beyond reason to claim that had the surgeon been able to remove the exciting cause earlier the remote effects would never have

occurred? I grant you that I am speculating, but my speculations are grounded on facts, and is the most natural road along which one is led when thinking of this subject. We do not look upon insanity occurring at the menopause as a disease, but as a symptom, complicating this physiological state; prolong, then, the change of life indefinitely, and would we not have an incurable mental condition? The best authorities tell us that the earlier these patients are seen the better are the prognoses. These facts certainly strengthen the position that the longer an exciting cause remains active, the more apt are the reflex complications to become chronic. I have no doubt that many a woman is gradually dragged into an asylum, because her physician persists in relieving her pain with morphine, or allays her nervousness with the bromides, and never for one moment looks for the existing cause; and yet such patients are relieved by operations even after the cause has so long remained undisturbed. Remember we do not want all the women of an asylum douched, pessaried, or oöphorectomized any more than do our brothers want to see them, as of old, cast upon a bed of straw, chained to the wall, or placed in Darwin's circulating swing for a day's treatment. Just so far as the Alienist has discarded his rough, unscientific treatment of the insane, the other members of the profession have come forward to lend their aid. Think of the wonderful forceless order that is kept in asylums to-day, notice the amusements that on every side surround the patients, and compare it with the same places of only a few years ago, when the superintendents were frantic in cruelty, and, in fact, devoted their idle moments to the invention of machines of torture! Do you suppose that the position of the Alienist to-day would be any greater revelation to the superintendents of old than would the demands of the gynecologist to the same man? All that we suggest is, correct the physical troubles, and continue with the same course of treatment. In all disease the mind becomes a sympathetic friend; it does not occupy a separate and distinct position, simply watching the rest of the human frame bear its aches and pain, but rather we find all the faculties in sympathy with the physical troubles, and often the brain complications become a greater source of danger than the initial disease. Dr. Robert Battey, who has claimed so much for his operation in these cases, thus writes me: "The position taken by Dr. Rohe, of the Maryland Insane Asylum, when writing upon this subject, coincides very nearly with my own opinion and experience." "You are aware that the great weight of opinion in Europe is entirely opposed to the claims of my operation, in psychological and nervous cases, and in this country, the profession is at present tending in the same direction. I believe the medical world is wrong upon this point, and I feel perfectly assured that time will demonstrate it. I am patiently waiting for

disrevulsion." Dr. Rohe, as above mentioned, gives us these facts: "In a hospital containing 200 insane women, 26 were found with evidences of pelvic disease. In 18, the uterine appendages were removed with the following results: 16 recoveries from operations, and 2 deaths; 3 have been discharged from the hospital completely restored, physically and mentally; in 10 considerable improvement followed the operation in both physical and mental conditions; in 3 the operations are of too recent date to allow of any definite expression of opinion. The mental disorders present in the 18 cases were melancholia 6, simple mania 1, periodic mania 2, hystero-epilepsy with mania 1, epilepsy with mania 3." Dr. Battey reports 7 operations for oöphoromania, 1 cured, 4 improved, 2 not improved; 9 for oöphoro-epilepsy, all cured,—he uses these terms instead of hystero-mania and hystero-epilepsy. Dr. Rohe, after carefully watching his patients, thus concludes an article on the same subject: "The facts above recorded demonstrate,—

"(1) That there is a fruitful field for gynecological work among insane women.

"(2) That this work is practicable, and can be pursued with as much success in an insane hospital as elsewhere.

"(3) That the results obtained not only encourage us to continue in the work, but require us in the name of science and humanity to give to an insane woman the same chance of relief from disease of the ovaries and uterus that a sane woman has."

The conclusion as reached by myself, after carefully looking over all literature that I can obtain, is:

(1) If a pelvic lesion is responsible for certain mental or nervous symptoms, the said symptoms, so long as the exciting cause remains active, will steadily grow worse, until they eventually become more formidable than the initial disease, and cannot be cured by any known surgical procedure.

(2) That we should never, scientifically speaking, wait for remote effects before we relieve pelvic disease.

(3) That if women, after they reach asylums, are cured by surgical means, it is the duty of the gynecologist to see that they never go there.

Annual Meeting of the American Medical Association.

The annual meeting of the American Medical Association takes place in San Francisco, Cal., on June 5. The preliminary report of the committee of arrangements indicates that no effort is being spared to make the meeting a success in every way. The chairman is R. H. Plummer, M.D., 652 Mission Street, San Francisco, Cal.

MEMORANDA.

TWO CASES OF CALCIFICATION OF THE UTERUS.

Case I.—K. M., a colored woman, 38 years old, was admitted to the Gynecean Hospital in May, 1893. She had the following remarkable surgical history:

In January, 1893, the operation of oöphorectomy had been performed on her in the Philadelphia Hospital, for the relief of a fibroid condition of the uterus, the symptoms of which had been menorrhagia and ovarian pain. No good resulted from this operation. The bleeding and pain continued undiminished.

On January 5, 1890, I performed celiotomy at the Gynecean Hospital. The ovaries had been completely removed. The uterus was about twice the normal size, hard, and with a very irregular nodular surface from the presence of many small subperitoneal fibroids. The greater portion of each Fallopian tube was found attached to the uterus. The tubes seemed to have been amputated very near the abdominal ostia. The ligature which had been placed about the left pedicle was found unabsorbed, surrounded by a mass of cheesy substance, such as is found in some cases of chronic pyosalpinx. The tissue about the right ligature was healthy, and but a few filaments of silk remained. The remaining portions of the Fallopian tubes were excised at their junction with the uterus, and the old ligatures were removed.

The woman had an easy recovery and the operation was followed by immediate permanent arrest of all bleeding from the uterus.

In June, 1890, she again presented herself at the Gynecean Hospital, complaining of pain in the left ovarian region. She stated that celiotomy had been performed at the Philadelphia Hospital two months previously, but that no relief of the pain had resulted.

Vaginal examination revealed a very tender indurated area in the left vaginal fornix in the region of the left pedicle. Exploratory celiotomy was performed, but nothing was discovered to account for the pain. Recovery from this operation was interrupted by an attack of intestinal obstruction from adhesion and binding of the intestine, which necessitated on the third day reopening the abdomen and freeing the intestine.

This woman again presented herself at the Gynecean Hospital in May, 1893, complaining of the same left ovarian pain.

She stated that she had suffered with this pain continuously, and had submitted to a fifth operation of celiotomy for its relief, at the

hands of a Philadelphia surgeon in 1892. Vaginal examination revealed a very hard nodular uterus, somewhat above the normal size. Projecting from the left cornua was a hard, intensely sensitive nodule about the size of a hickory-nut. It was to this point that she referred all her pain.

On May 31, 1893, the abdomen was opened and the uterus was removed at the vaginal junction. The uterus had undergone calcification throughout. The nodule which had been felt by bimanual examination projecting from the left cornua was a calcareous mass of stony hardness, crowned only by a very thin layer of peritoneum.

Her convalescence was very easy, and when she left the hospital she said that she was free of all pain.

Dr. Beyea makes the following report:

Pathological Description.—An irregularly shaped uterus, considerably enlarged and almost entirely composed of small multiple intermural fibroid tumors, showing different degrees of calcareous degeneration. On section the uterine tissue was found to have undergone almost complete atrophy and the uterine cavity is obliterated. The cervix is apparently normal. Upon the anterior and superior surface of the uterus are two calcified nodules, the size of an English walnut and a hickory-nut.

One of the most interesting points in the history of this case is the effect upon menstruation, caused by the removal, at the second celiotomy, of the portion of the Fallopian tubes which had been left at the first operation.

The large number of operations of celiotomy—six in all—to which this woman submitted is, I think, unique. Her general health and strength were unimpaired by her disease and treatment.

Case II.—E. K., white, 72 years old, was admitted to the University Hospital in August, 1892.

She was a well-preserved old woman, the chief senile change being the marked atheromatous condition of all the arteries.

Menstruation had begun at the age of twelve. She had borne one child and had had several miscarriages. The menopause had occurred before the age of forty-five. Menstruation had always been normal, and during her sexual life she had never suffered with the symptoms of any uterine disease.

For one year before admission to the hospital she had complained of continuous increasing pelvic pain. She suffered from hemorrhoids and occasional bleeding from the anus. There was always a feeling of obstruction in the rectum. She had lost ten pounds in weight during the past year.

Vaginal examination showed a large, very hard uterus, somewhat

nodular upon the surface, retroverted, the large fundus lying in the hollow of the sacrum.

Malignant disease of the uterus was suspected and celiotomy was performed.

The uterus was retroverted; the fundus was pressing directly on the rectum; there were no adhesions.

The cervix was normal in size and consistency; all the organ, however, above the internal os, was a hard calcareous mass about the size of a cricket-ball.

The ovarian and uterine vessels were ligated, the uterus was amputated below the internal os, the stump was covered with peritoneum and the abdomen closed.

Recovery was uneventful.

The body of the uterus had undergone calcification throughout, the saw being necessary to make a section.

This woman was closely questioned with regard to any symptoms of uterine fibroid which might have been manifest before the menopause. She had, however, suffered with none. Menstruation had always been normal, and the menopause had occurred at the normal time.

C. B. Penrose, M.D., Ph.D.

A CASE OF TORSION OF THE NECK IN VERTEX PRESENTATION.

The recorded cases of this anomaly are so few that the report of one may not be devoid of interest.

Mrs. R. P., aged 33, II-para; first child still-born at term, twelve years ago; began her second confinement December 7, 1893, at five o'clock P.M., the labor terminating six hours later without the use of instruments. As the presentation was vertex in the R. O. A. position, nothing abnormal was suspected or noted, save comparatively slight sacral and perineal pressure from the head throughout the labor, although it was somewhat tedious, and near the close a caput succedaneum in the occiput, but these phenomena were credited to the long interim between the pregnancies and the age of the patient, and to the prolonged incarceration and resulting tumefaction of the anterior lip of the cervix, which it was impossible to liberate between the pains. The expulsion of the fetus took place under the following mechanism: The occiput was first disengaged from the pubis, then the chin from the perineal commissure, when the occiput turned about two finger-breadths to the right. The shoulders did not rotate, and on

advancing the head and shoulders were found to hold the following relation to each other,—viz., the face was turned towards the median line of the back, and the occiput corresponded to the anterior plane. The shoulders were quite broad, and manual assistance was rendered in their delivery.

The infant was alive at the beginning of labor, as evidenced by its vigorous movements, but it was dead when born. The cord was not prolapsed.

As to the cause of torsion of the neck, Madame Henry considers it to be due to the irregularity of the uterine contractions. In this case, a possible additional cause may have been violent exertion in various attitudes, during the latter weeks of gestation, for the purpose of inducing labor, as the woman feared she was greatly exceeding her time. Through this exertion, after the descent of the head, the neck and body may have become twisted to a small degree, which the contractions of labor would likely make more pronounced, until complete torsion was produced.

"The cases on record are few, and there is but little literature upon the subject. Madame Henry reports in full five cases of the abnormal presentation. Three of the infants were still-born. The first was macerated, but the other two were alive at the beginning of labor. One died from compression of the prolapsed umbilical cord, the other as a result of protracted labor. The author believes that torsion of the neck favors prolapse of the cord."[1]

This cut, which represents the relation of the head to the body of the case just reported, is taken from the same number of the *American Journal of Obstetrics*, and illustrated the article referred to.

ELMER E. KEISER, A.M., M.D.

TACONY, PHILADELPHIA.

[1] Abstract in the *American Journal of Obstetrics* for March, 1892, of the paper of Madame Henry (head midwife of the Paris Maternity), in *Annales de Gyn. et d'Obst.*, 1891.

A CASE OF MULTIPLE NEURITIS CAUSED BY ARSENIC USED IN THE TREATMENT OF CHOREA.

M. H., aged 9 years, a female of excessively neurotic temperament, presented herself at the clinic with chorea of moderate severity. She was placed upon Fowler's solution in ascending doses commencing with three drops three times daily. At the end of three weeks she was taking ten drops, but as considerable irritation of the stomach and kidneys was present, the dose was reduced one-half. Four weeks after this she returned and reported that, while the chorea was better, for the past week she had experienced increasing difficulty in walking, until at the time of her visit she was obliged to go upstairs upon her hands and knees. She had suffered no pain. Examination showed considerable atrophy of the muscles of both thighs and legs; knee-jerks absent, and some tenderness was present in the popliteal spaces. The patient had almost complete foot-drop. Reactions of degeneration were present in the extensor muscles of the feet; the remaining muscles of the legs and thighs showed merely qualitative changes, responding to a strong faradic current. Sensory symptoms were absent; the arms were not affected; puffiness about the eyes and other symptoms of the action of arsenic were present. Upon stopping the use of the Fowler's solution, and with the use of electricity and similar measures, the symptoms began to improve, and at the end of two months she was entirely well with the exception of a slight tendency to drag the toes when walking.

That this patient was more susceptible to the action of arsenic than the average individual is evident. We have frequently given larger doses than this patient ever took to much younger children without obtaining the signs of the toxic action of the drug, and of the large number of cases of chorea treated at the clinic during the past six years by the arsenic treatment, this is the only one in which neuritis resulted.

CHAS. S. POTTS, M.D.,
Instructor in Nervous Diseases in the University Hospital;
Assistant Neurologist to the University Hospital.

AN INTERESTING CASE IN OBSTETRICS.

IN February I attended Mrs. ——, German, aged 39, then a mother of five living children, in her ninth accouchement. It was a full-term birth, breech presentation, with spina bifida. Baby died six hours after. October 15 I attended the same lady; this time twins, six months old; separate sacs. The first engaged in the pelvis, first

presentation, and was born alive and lived three days, and with more efficient nursing might have lived up to this day, for in this connection I may mention that I can add to the statistics of survivors born at this period a now healthy young man living at Winona, Minn. The second fetus was born two hours later, breech presenting, and dead. The interesting points in this case are: (1) The early conception; (2) The placenta, or that part to which the living fetus was attached, was normal; the part, however, nourishing the dead-born was apoplectic and with a complete line of demarcation. That this state of the placenta caused the premature confinement there is no doubt.

September 19 I called Dr. D. Longaker in consultation in this case, to get his opinion as to the expediency of producing an abortion. The patient was immense, and my diagnosis of dropsy of the amnion proved correct. She was also very dropsical in her lower extremities, and the urine quite albuminous, owing to the great pressure upon the abdominal circulation. She had also mild attacks of eclampsia. Dr. Longaker advised to wait a while longer, so that the period of viability might be reached. To accomplish this we advised rest and anodynes. Nature, however, stepped in on the date mentioned and relieved the sufferer, who for a week or so previous had to locomote herself to her upstairs bedroom upon her hands and feet. In conclusion, I may mention that both amnial sacs were very dropsical, the one of the dead fetus slightly more than the other. The fetuses weighed about two and a half pounds each. Patient has fully recovered.

FERDINAND LESSING, M.D.

1115 WALLACE STREET.

FRACTURE OF BOTH SCAPULÆ IN AN INFANT.

G. M., girl, born September 24, 1893. Ninth child. Midwife in attendance. Was called, and found face presentation, chin anterior. Shatz's method. The delivery was now instrumental. With the exception of slight delay in rotation of shoulders, delivery was rapid and normal. Child was cyanotic. Hot bath and cold effusion had no effect. Schultze's method secured after three minutes free respiration. Examination of arms, legs, head, umbilicus, anus, genitalia showed all in good condition. I did not examine the scapulæ.

About five weeks after birth, the mother said that she heard a peculiar crackling whenever the child moved its arms. There was no history of a fall since the birth. The mother had fallen three days before the birth of the child, but this could not explain the condition

present. On examination I found both scapulæ fractured, the fracture extending from suprascapular notch, through the spine and infrascapular fossa.

Crepitus was very marked. Whether the fractures occurred after birth, which would necessitate a high fall or blow upon both scapulæ,

or whether they were congenital, I do not know. My opinion is that they were congenital. I cannot report the result of treatment, but am afraid it will not be of much avail.

AN INTERESTING DEGREE OF HYPERPYREXIA IN A PNEUMONIA PATIENT.

On the evening of October 8, 1893, I was called to see C. K., aged five years, boy, rather weakly; history of catching cold about three weeks before; had been ailing since the 6th. In the night, of the 6th to 7th, he had severe vomiting.

Status Presens.—Patient restless, flushed. Pharynx red, tonsils enlarged, tongue at the tip looking scarlatinous. Severe otalgia due to an otitis present. Pulse bounding, 150; respirations, 52; temperature, 103.5°. Pain in right axillary region, also in the right mammary. Roughness over right upper lobe of lung; occasional râle over right base. He was ordered Tr. aconite and liq. potass. citrat. internally; Priestnitz bandage to throat; cotton jacket to chest; ice cap to head.

October 9. Morning.—Child had been delirious during night; bilious vomiting toward morning. Respirations, 60; pulse, 170, and temperature 109.3°. Thinking that the thermometer might be faulty I used a second one with the result of 109.2°. Immediately the patient

was stripped and plunged into a tub filled with hydrant water. Then gave ℥ss spts. turpentine. After five minutes temperature had come down to 104.6°. Gave another ℥ss spts. turpentine and continued the bath for five minutes more. Temperature came down to 103°, but the patient showed signs of collapse, and this necessitated withdrawal from the bath. Ice bag to the head; Priestnitz hydropathic applications, changed every hour, to the chest; spts. frumenti, ℥j, was given every hour.

October 9. Afternoon.—Temperature, 105°; respirations, 54; pulse weak, 150. Acetanilid, gr. ij, every three hours. Did not lower the temperature more than ½°. Rusty sputa, remarkable in a patient of that age. Acetanilid, gr. iij, with cold water sponging, brought temperature down to 103°. Typical pneumonic symptoms marked.

October 9. Evening.—Temperature, 104.8°; respirations, 65; pulse, 160. Acetanilid, gr. iij; hydropathy *pro re nata*; spts. frumenti. Aconite had been stopped the morning of the 9th.

October 10. Morning.—Patient slept three hours during the night; cough increasing. Dulness at right base, extending under axilla to right apex. Respirations, 48; temperature, 103.5°; pulse, 152. Slight cyanosis of finger tips, lips and cheeks. Expectoration difficult; pulse very weak. Quinine, aromatic sulphuric acid, ammon. carb., spts. frumenti; Priestnitz applications to chest.

October 10. Evening.—Respirations, 54; temperature, 104°; has been up to 105° in the afternoon; pulse, 160. Few râles at base.

October 11. Morning.—Patient had slept about four hours. Temperature, 99°; respirations, 45; pulse, 115.

October 11. Evening.—Temperature, 103.2°; respirations, 52; pulse, 145. Cough very frequent; expectoration difficult.

October 12. Morning.—Temperature, 99.1°; respirations, 39; pulse, 115. No antipyretic had been given for eight hours.

October 12. Evening.—Temperature, 101.2°; respirations, 39; pulse, 125.

October 13. Morning.—During the night, as during the nights of 11th and 12th, free perspiration. Temperature, 98.9°; respirations, 36; pulse 113, weak; expectoration free.

October 13. Evening.—Temperature, 98.7°; respirations, 30; pulse, 110.

October 14. Morning.—Temperature, 98.6°; respirations, 28; pulse, 106.

October 14. Evening.—Temperature, normal; respirations, 26; pulse, 105. Recovery.

E. C. Wagner, M.A., M.D.

Wilkes Barre, Pa.

CLINICAL DEPARTMENT.

UNIVERSITY HOSPITAL.

[Service of Dr. JOHN ASHHURST, JR.]

GRAIN OF CORN IN THE TRACHEA; TRACHEOTOMY AND REMOVAL; RECOVERY.

THOMAS D., aged 18 months. Admitted January 4, 1894. The history was that on the morning of the same day the child had obtained possession of a grain of corn which it had placed in its mouth. Shortly after it manifested signs of great dyspnea. A physician was called in and, recognizing the nature of the trouble, brought the child to the hospital. On admission, three hours after the accident, the child presented the characteristic symptoms of a foreign body in the air-passages. The first spasm of dyspnea had abated, but there was still great disturbance of breathing. The respirations were roaring in character, there was a harsh croupy cough, and at intervals of a few respirations marked dyspnea on expiration. Tracheotomy was at once decided on. No anesthetic was administered. Owing to the thickness of the child's neck, the incision was necessarily a deep one. The trachea was opened below the isthmus of the thyroid. As soon as the opening was made the grain of corn was expelled. A tracheotomy-tube was introduced with the expectation of removing it at the end of twenty-four hours if no unfavorable symptoms developed. Following operation there was little discharge from the tube, and the child did perfectly well until the following morning, when the temperature rose rapidly to 104°, the respirations at the same time reaching 60, and the pulse 180. Moist râles were heard over both sides of the chest, confined, however, to the larger tubes. Under the condition of threatened catarrhal pneumonia it was decided to allow the tube to remain. Turpentine stupes and a cotton jacket were applied, and active stimulation resorted to in the shape of small, frequently-repeated doses of carbonate of ammonium, digitalis, and whiskey. The child's condition remained very precarious for three days, respirations running as high as 72. At the end of this time the symptoms began to ameliorate, and on the seventh day after operation the temperature fell to normal. The tube was then removed. The patient rapidly regained strength, the wound quickly filled with granulations, and on January 22 the child was discharged well.

J. H. JOPSON, M.D.,
Resident Physician.

ALUMNI NOTES.

In Ohio there is a Northern Alumni Association, which already numbers between twenty-five or thirty graduates of the Medical Department of the University of Pennsylvania, resident in that State. It was organized about a year ago for the purpose of fostering the University spirit, and to enable graduates of the same school to exchange ideas and recount experiences from time to time. The meetings are more social than literary. There are no annual dues, and the members are assessed only as funds are needed. The first President of the Association was William R. Long, D.D.S., of the class of '85, who died April 28, 1893. The present officers are as follows: President, B. L. Millikin, M.D., '79, Cleveland; First Vice-President, C. A. Hamann, M.D., '90, Cleveland; Second Vice-President, T. Hubbard, M.D., '85, Cleveland; Third Vice-President, J. V. Cleaver, M.D., '87, Akron; Fourth Vice-President, J. F. Marchand, M.D., '87, Canton; Resident Secretary, T. P. Cook, M.D., D.D.S., '92, Cleveland; Corresponding Secretary, O. T. Thomas, M.D., '92, Cleveland; Treasurer, Geo. F. Woodbury, D.D.S., '91, Cleveland.

In the city of Cleveland there are ten graduates of the University of Pennsylvania, of whom Dr. H. K. Cushing, of the class of '51, lives at 967 Prospect Street.

In Cincinnati there are eight graduates, of whom Dr. C. Y. Comegys, of 298 W. Seventh Street, represents the class of '48. Scattered throughout the rest of the State there are upwards of fifty graduates in the active performance of their professional duties.

Dr. Franklin Bache Stephenson, A.M., M.D., A.A.S., of the Medical Corps of the United States Navy, is now stationed at Yokohama, Japan, on board the United States Steamer "Marion." He is a frequent contributor to medical literature, and his writings are well known.

Dr. George D. Morton, of the class of '92, formerly Resident Physician at the University Hospital, is now acting as Assistant Surgeon to the M. C. R. R. Railway, at Aguas Calientes, Mexico.

Necrology.

Dr. George Randolph Parry, who died on June 12, 1893, was a member of the class of '67. In the same year he began practising at Union Springs, N. Y., where he remained until 1880, when he took up his residence in the old Parry Mansion, the ancestral home of the family

at New Hope, where he practised until his death. He was a Knight Templar, and a member of the Bucks County Historical Society, as well as of the Historical Society of Pennsylvania, and an active member of several medical societies. Two daughters survive him.

Dr. Robert Frank Evans, of the class of '47, who was born in 1821, in Virginia, died at his residence in Shelbyville, Tenn., November 29, 1893. Impressive funeral services were held on the 1st of last December, under the auspices of the Knights Templar and the Masonic fraternity, to which he belonged. The burial took place at Willow Mount Cemetery, Shelbyville.

Dr. James E. Wendel died at Murfreesboro, Tenn., on December 21, 1893, aged 81. He graduated from the University in 1839, and was continuously engaged in practice until stricken down, about ten days before his death.

Dr. William Gamble Young, aged 25, died at South Easton, of apoplexy, on March 10, 1894. Deceased graduated from Lafayette College in the class of '90, and from the University of Pennsylvania in 1893.

Physician in Charge of the Preston Retreat.

The Board of Managers of the Preston Retreat have elected Dr. Richard C. Norris to the position of Physician in charge of the institution to succeed Dr. Joseph Price who recently resigned.

The Institution, endowed by the late Dr. Jonas Preston, had for its first physician in charge, Dr. William Goodell, who, after a service of nearly twenty years, was succeeded by Dr. Joseph Price in 1886.

RECENT APPOINTMENTS.

Dr. Walter D. Green has been appointed Port Physician at Philadelphia. Dr. Green was born in New Jersey in 1861, and graduated from Princeton in 1883, and from the University of Pennsylvania in 1886. He was then appointed Resident Physician at the Presbyterian Hospital, and subsequently at the Pennsylvania Hospital. In 1892 he was made an assistant medical inspector in the Bureau of Health.

Dr. A. A. Stevens has been appointed to the medical staff of St. Mary's Hospital, and to the Out-patient Department of St. Agnes's Hospital.

EDITORIAL.

WEAK HEART.

On Thursday, March 1, the medical classes of the University had the pleasure of listening to an interesting discourse on the above subject by Dr. J. M. Da Costa. The lecture was one of two which Dr. Da Costa kindly consented to deliver. The subject was treated in a most practical way, the various forms of the affection being illustrated by numerous clinical cases drawn from the speaker's extended experience. The following varieties of weak heart were recognized:

(1) That dependent upon degeneration of the cardiac muscle, especially the fatty heart.

(2) That connected with dilatation of the heart.

(3) That resulting from the action of certain poisons on the nervous mechanism of the heart.

(4) That due to an intrinsically weak muscle, and unassociated with demonstrable lesions.

(5) That resulting from nervous exhaustion. The symptoms characteristic of each of these conditions were clearly defined.

The weak heart of fatty degeneration is a familiar condition. It is characterized by shortness of breath on slight exertion and pain over the region of the heart, or more commonly over the top of the sternum. The arteries are generally rigid, the muscles flabby, and the patient anemic. The impulse of the heart is feeble, and the first sound without tone.

In the second form of heart weakness, that due to dilatation of the heart, in addition to the symptom of feeble circulation, there is dropsy in the extremities, chest, or abdomen; the first sound is short and without force, and the second short and valvular. The impulse is weak and fluttering, and percussion indicates an increase in the area of cardiac dulness. Of this form dropsy, perhaps, is the most striking differential symptom.

Weak heart from the action of poisons is commonly associated with general diseases in which toxic principles are at work, such as influenza, typhoid fever, diphtheria, and lithemia, or with the ingestion of poisons like tobacco or alcohol. In dyspepsia also weak heart is encountered, which may be due in part to poisonous elements like ptomaines, produced by deranged metabolism, though the dyspeptic

heart is more generally an irritable heart. The weak heart of poisons can generally be recognized by the condition under which it develops, the signs of poor circulation, and the tendency to syncopal attacks, and even anginoid pains. Dr. Da Costa did not believe that the clotting of blood in the vessels under these conditions is a cause of weak heart, but rather a subsequent phenomenon resulting from the failure of circulation. The fact that symptoms of cardiac weakness, such as we see in influenza or in diphtheria, may last for several weeks after the symptoms of the causal disease have disappeared, was dwelt upon, and the importance of careful nursing and absolute rest in averting a fatal termination emphasized.

Dr. Da Costa stated that he has given considerable study in the last five or six years to a certain form of heart weakness dependent upon an *intrinsically weak cardiac muscle*, and in which nothing whatever can be found in the system to account for it. Such patients are often apparently strong and healthy, of good muscular development, without signs of indigestion, and yet have weak hearts, which are incapable of properly carrying on their functions. In these cases the pulse is slightly feeble, easily excited,—now fast and now slow,—the extremities cold, and the skin may be cyanotic. On auscultation the first sound is feeble and confused. The area of dulness is not increased. This condition frequently persists throughout life, and no doubt is often the cause of a fatal termination in certain cases of acute disease in which all the conditions seem favorable to recovery. To support this view the speaker cited the case of a lady who had a slight attack of bronchitis. She was perfectly well when seen in the morning, and in the afternoon she died suddenly in collapse. There had been no evidence of organic disease of the heart, but she had been a sufferer from an intrinsically weak heart.

The question whether or not a feeble heart ever terminates in organic disease was answered in the affirmative, and the following case related as an illustration of such a result. A young lady, who had been for a long time under the speaker's care, and who had a typically feeble heart, after some years married. Gradually, without apparent cause, an apex-murmur developed, the heart began to dilate, and after two years of dilatation, with dropsy and pulmonary edema, the case terminated fatally.

In these cases no marked change is found in the cardiac muscle after death, although in a very few instances slight interstitial carditis may be discovered.

It was also pointed out that the disease was not invariably a grave or fatal malady, and that, when recognized and properly managed, was not incompatible with the average length of life.

Heart-weakness from nervous exhaustion has been very imperfectly studied. It is generally observed in those who have undergone some worry, or who have been subjected to prolonged mental strain. There are all the signs of failing circulation,—cold hands and feet, a tendency to prostration, and some blueness of the surface, but there is no—and this was particularly emphasized—disturbance of the respiration. Dyspeptic symptoms are frequently present, and occasionally these cases merge into hysteria. The physical signs of the nervous heart are quite insignificant. The first sound is short, often valvular, and in marked contrast with the dull, confused first sound of the weak-muscle heart. The pulse may be rapid or slow, but it is not so apt to be intermittent or irregular as it is in the muscularly weak heart. The sphygmographic tracing of the pulse in the nervous heart shows, as a rule, an upward stroke longer than would be expected, and somewhat oblique, while in the weak-muscle heart the up-stroke is more upright, and the diastolic tracing very irregular. The manner of development, the duration, the nervous element in the case, the absence of dyspnea, and the short first sound of the heart will generally indicate this condition. Other nervous phenomena may become associated with these cases of cardiac nervous exhaustion, and, as an instance of this, a case was cited in which the weak heart was followed by nervous diabetes.

As regards the prognosis of these functionally weak hearts, it was pointed out that, on the whole, the outlook was favorable, but that heart-failure might occur at any time from undue strain.

The treatment of the weak heart from muscular degeneration and from the poison of general diseases was passed over, as this is fully treated in systematic text-books and in the regular course of lectures on heart affections. Strychnine was suggested as a valuable remedy suited to both the nervous and the weak-muscle heart, but especially to the former. Digitalis and similar remedies have proven of less service in the heart of nervous exhaustion than was to be expected, but were found invaluable in the weak-muscle heart. Arsenic was also mentioned as a useful remedy when given steadily in the heart of nervous exhaustion.

For the Students' Hall Fund.

The fund created for the purpose of erecting a Students' Hall on the University grounds has received another $10,000 contribution. The gift was received in the same way that the previous ones have been made, the name of the donor being withheld, the Treasurer, M. C. C. Harrison, announcing the fact that the money has been given. The fund now amounts to $95,000, $75,000 having been secured through Mr. Harrison, and is now practically made up. Operations will probably be commenced at once.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D.

The Physical Diagnosis of Gall-Stone Colic.

Gerhardt (*Deutsche medicinische Wochenschrift*, 1893, No. 46) gives the physical signs of this trouble as follows: In the beginning, even before there is any pain, there is a palpable tumor in the region of the gall-bladder which disappears as the stone passes into the intestine; the walls of the gall-bladder fall quickly together and a slight rubbing together of its walls can be felt; the attack ends with this sign, though the pain does not always end; sometimes a diastolic, rubbing sound is heard in the region of the gall-bladder, which disappears with the ending of the attack. After a prolonged attack a friction remains in the region of the gall-bladder which can be felt, but can be better heard with a stethoscope; during the course of a severe attack the liver increases in size, and can be felt below the margin of the ribs. One can exclude gall-stones when no stone is found in the feces, when there is no friction in the region of the gall-bladder, and, finally, when the gall-bladder itself is not increased in size.

A Case of Acute Hemorrhagic Pancreatitis.

Paul (*Boston Medical and Surgical Journal*, January 4, 1894) reports the following case: E. C., a robust farmer, had a severe attack of abdominal pain thirty years ago from which he was not expected to recover. Nine years afterwards he had a second attack of the same character, epigastric distress, vomiting, etc. During the recent years of his life the attacks have been daily. The last attack, from which the man died, was as follows: He was suddenly seized with epigastric pain under the lower part of the sternum and extending to the nipple on either side; he ate a large dinner in hopes of relieving the pain, but the food was immediately vomited; four hours after the beginning of the attack, the patient was pale, with cold sweat on hands and face, suffering severely from intense epigastric pain; the pulse was 70 and strong, while the temperature was normal.

The abdomen was moderately distended, but there was no tumor or tenderness to be found. The pain, constipation, and distention continued until death, thirty hours after the beginning of the attack. A partial post-mortem showed the omentum adherent from old peritonitis; the appendix was normal; the intestines were free and showed no signs of peritonitis; there were several stones in the gall-bladder; the pancreas was a dark-red color and loaded with blood.

Senile Form of Multiple Neuritis.

Oppenheim (*Berliner klinische Wochenschrift*, 1893, No. 25) reports six cases of multiple neuritis in persons between 70 and 82 years of age. There was a gradual impairment of motion and sensibility of the extremities. They all had a high grade arterial sclerosis. On the fingers and toes there is paresthesia, with paralysis of the interossii and atrophy of the peroneii. Over the nerve-trunks there was slight tenderness, no pain. There was no disturbance of the reflexes. The cerebral nerves were also intact. There was slight anesthesia. Two of the cases improved markedly, a third slightly, one became worse, and the other two remained stationary. This form of neuritis is distinguished from others by the absence of any toxic or infectious cause; its chronic cause, the slight diminution of sensibility, and mild paralysis, and the freedom of the cerebral nerves. The cause is probably a process which partakes largely of the nature of arterial sclerosis. The therapy is wet packs, galvanism, rest, and full diet.

Tuberculin in the Diagnosis of Tuberculosis.

Denison (*New York Medical Journal*, February 3, 1894) says that in certain doubtful cases of suspected tuberculosis, Koch's tuberculin has the power to bring to our knowledge their true nature and extent with gratifying certainty and precision. The "reaction effect" consists (in the lung) mainly in a harsh, puerile, or exaggerated broncho-vesicular breath-sound, as heard by the stethoscope over the affected area. This is an exaggeration of what was heard before the tuberculin reaction, or it is heard in places where the breath-sounds were previously inaudible or very different. It is not an evanescent effect, but usually continuous, though in a lessened or lessening degree during the whole course of treatment. Sometimes the local lung reaction is very slight, while the systemic reaction is quite marked and characteristic. He quotes three cases, an obscure lung lesion, a suspected meningitis, and an arthritis, all of which gave the characteristic tuberculin reaction, and all of which improved greatly upon the continued use of the substance.

Typhoid Fever in Pregnancy and Labor.

Vinay (*Lyon Médical*, December 3, 1893) believes that the mortality of typhoid fever is not affected by pregnancy, the mortality by various symptomatic treatments being about 17 per cent.

The influence of the disease on gestation, however, is bad, all authors agreeing that abortion takes place in from 50 to 80 per cent. of the cases. The frequency of abortions necessarily varies with the gravity of the epidemic. The real condition which seems to determine the abortion is the degree of pyrexia, more miscarriages taking place when the fever is high than when it is low. When abortion is imminent, there is often a chill with an increase in the fever. When there is considerable hemorrhage, the temperature often falls to below normal. Most children born at the seventh month die, while it is also true that a great majority of the children born at term also die.

Treatment.—The cold-bath treatment of pregnant women has been followed by excellent results, as it has in ordinary typhoids. The good effects of the bath upon the continuance of the gestation, however, is much less evident, the percentage of abortions in some statistics being as high as 80 per cent. If abortion takes place, the baths are continued as long as the fever continues. If it is necessary to use medicines, ergot, quinine, alcohol, and antipyrin may be used.

Simulation of Diphtheria.

Dr. Perrèy (*Répertoire de Pharmacie*, No. 10, 1893) reports a case of simulation of diphtheria. A soldier came to the hospital with a membranous exudation on the fauces and tonsils. A provisional diagnosis of diphtheria was made. The next day a second soldier appeared with the same character of sore throat. This latter acknowledged that both he and his comrade had insufflated a small amount of cantharides powder, and had immediately washed it off with water. This had caused the false membrane.

Prevention of Tuberculosis.

Vickery (*Boston Medical and Surgical Journal*, January 4, 1894) in a paper on the above subject first calls attention to the mortality of phthisis, which remains practically the same as it was years ago. He thinks that our enthusiasm over the discovery of the *cause* of tuberculosis has caused us to lose sight of the hereditary and acquired predisposition to the disease. "Even weeds must have soil to grow in." Granting, however, the importance of climate and heredity, possibly no one doubts that the *complete destruction* of the bacillus tuberculosis would eradicate the disease. Raw milk from tuberculous cows may occasionally cause the disease, though the flesh of such animals, if inspected, is harmless. The main source of danger lies in the sputa and the pus of tuberculous sores. These may become dry and spread through the air.

Behrens sums up the necessary means for its prevention as follows: (1) The public should be enlightened; (2) sputa in public places should be minimized or rendered innocuous; (3) the streets should not be allowed to be dusty; (4) clothing and houses should be disinfected; (5) there should be public hospitals for the tuberculous; (6) tuberculous patients should not follow avocations that may endanger others; (7) tuberculosis in cattle should be under control of the government. A corollary to these rules is the report to the Board of Health of cases of tuberculosis.

Bowditch (*Ibid.*) believes that environment is a great factor in the causation of tuberculosis. He believes that tenements should not be tolerated in cities. Children should be taught in school of the danger of spitting in houses and in the street. He believes we must be cautious about declaring tuberculosis to be as contagious as small-pox and scarlet fever. It is an infectious disease, but not to the same degree as the others, and the conditions are very different. It would have a depressing effect on patients with incipient phthisis, to be treated as though they had a highly contagious disease. He always directs his patients not to use handkerchiefs but to use cloths or paper-cups which can be immediately burned. White (*Ibid.*) believes that tuberculosis of the integument can very readily cause tuberculosis of internal organs either in the patient or his friends. He believes tuberculosis should be put in the same category as leprosy. If the same methods were applied it would soon be eradicated. Olis (*Ibid.*) believes that, considering the varied means of contagion, it is wonderful any of us escape. He believes one of the great needs is hospitals under State or national care where consumptives can be treated. Greenleaf (*Ibid.*) uses lintine cut in squares for the reception of the sputa. This is rolled in wads and placed in a paper bag, the whole being burned upon the first opportunity. He suggests that these napkins be used by all patients who are compelled to expectorate much. Bowditch (*Ibid.*) wished to impress his views as to the reporting of cases to the Boards of Health. "With caution and with rational methods I believe an immense deal of good can be done, but we should keep within bounds." He believes it nonsense to class tuberculosis with scarlet fever and small-pox.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

An Analysis of Twenty-eight Cases of Intussusception.

Eccles (*Centralblatt für Chirurgie*, No. 32, 1893) says of the twenty-eight reported cases seventeen were males and eleven females. Eighteen were in children under 1 year, four between 1 and 2 years, and three from 2 to 5 years, one of 7, one of 9, and one of 39. The three cardinal symptoms are: Abdominal pain, vomiting and bloody stools. The peculiar form of the abdomen could be made out in eighteen cases.

The treatment may be expectant, mechanical or operative. In four cases the expectant plan was adopted, resulting in two deaths and two recoveries. One case was treated with injections of air and required a secondary laparotomy. Nine were treated with injections of oil, water and milk, resulting in four deaths and five recoveries.

A Case of Sub-diaphragmatic Abscess.

Meltzer (*International klinische Rundschau*, No. 29, 1893) reports the case of a child, aged 26 months, with a pneumonia of the right apex and very high fever. In a few days fever fell by lysis, and remained normal for ten days. At this time pneumonia again developed in the right lower lobe; the fever fell five days later by crisis. In the course of four days the child began again to have fever, and an empyema of the right side was diagnosed. An exploratory puncture was made and pus escaped. On the following day an Eslander's operation was made, but very little pus was found in the pleural cavity. By a closer examination the diaphragm was found pushed up into the pleural cavity, and fluctuation was detected. Only two of such cases have ever been described. The author thinks the cause of such a condition was infection of the lymph vessels of the diaphragm with subsequent abscess formation.

The Treatment of Myxedema by Feeding with the Thyroid Gland.

Laache (*Centralblatt für Chirurgie*, No. 37, 1893) reports the case of a baker who had suffered from myxedema for several years. He was treated in the general hospital at Christiana, and fed on the thyroid gland of the sheep.

The gland was prepared as a glycerine extract, in the form of bouillon, and finally in the raw state with a little salt and pepper. The dose was at first five grammes daily. Several disagreeable digestive symptoms appeared, and the dose was reduced to three, two and finally one gramme every second or third day. At first there is some loss of appetite, coated tongue, general lassitude, dizziness, palpitation of the heart and albuminuria. The pulse was increased from 60 to 100 beats per minute.

The patient lost twelve kilogrammes in weight during the first five weeks. At the end of five weeks' treatment the patient began to increase in weight, and had an entirely different appearance. The patient was not completely cured, but was sent home and recommended to repeat the treatment at varying intervals.

Tracheotomy for a Foreign Body in the Larynx.

In the *Lyon Médical*, October 15, 1893, Bonan describes the case of a boy, aged 13 years, who got a piece of bone in his larynx. He coughed up blood, and afterwards pus, and had considerable pain in his throat and some swelling. There was also paroxysmal dyspnea. Tracheotomy was recommended, but was refused. The boy was taken with a suffocative attack, and, believing him to be dying, the parents consented to an operation. Tracheotomy was performed, and three days afterwards the tube was removed and an attempt made to remove the bone. This was successfully done by means of a forceps, introduced through the wound. The author points out the fact that the tracheotomy had allowed the larynx to rest and the vocal cords to relax. The foreign body being thus loosened had fallen down within reach of the forceps and thus enabled it to be grasped.

New Use of Salol.

In the *Bulletins et Mémoires de la Société de Chirurgie*, 1893, p. 489, Reynier reports the use of a method devised by his assistant, Isch-Wall. It consists in injecting into suppurating glands, sinuses, or other places fused salol or salol fused with iodoform or aristol. These fuse at a temperature of 40° to 42° C., and remain liquid fifteen or twenty minutes. While in this state they are injected. They are deposited in the cavity, and serve to act as a continuous disinfecting agent. Its use is especially advocated in glandular and bone lesions; illustrative cases are given. The author says that they do not claim to have discovered a sure and certain means of asepticizing purulent foci, but have simply added to current surgical practice a convenient means, innocent and sometimes very effective, of curing some of those cases of prolonged suppuration which are so often annoying to the surgeon.

Surgery of the Kidney in Children.

In the *Revue Mensuelle des Maladies de L'Enfance*, November, 1893, Aldibert concludes his observations on renal surgery in children. Referring to the results of operations for malignant disease, he says that 45 nephrectomies gave 20 deaths, 4 incomplete operations, and 21 operative cures. Of the 20 fatal cases, 13 died of shock, 4 by septic peritonitis, 1 by volvulus, and 2 from some undetermined cause. The 4 incompleted cases died, 2 from shock and 2 from the progress of the disease. This gives 22 post-operative deaths, or a mortality of 48 per cent. Children bear nephrectomy for other causes well, and even in this list there are 8 recoveries of children from six months to two years of age. Recurrence of the disease is the rule. Of 21 operative recoveries, 11 died within nine months and 1 lived as long as eighteen months, 8 were lost sight of within four months, and but two appear to be cured, having remained without recurrence eighteen months and two years after the removal of the growth. Operative accidents or fatal difficulties also are apt to be encountered. Three cases of benign tumors are given, two of which recovered and one died from septic peritonitis. The author concludes as follows:

(1) That surgical kidney occurs in children as well as adults, and it presents with slight exceptions the same clinical picture.

(2) That the same surgical intervention is justifiable. Nephrotomy as well as nephrectomy is well supported by children even in infancy; malignant tumors alone present such a degree of gravity as to require the surgeon to refrain from operative procedures.

The Aniline Treatment of Carcinoma.

The favorable results reported by Mosetig-Moorhof in 1891 from the use of methyl-violet in inoperable cancer has induced others to try the same line of treatment. In the *Annals of Surgery*, November, 1893, Willy Meyer gives his experience. For injection he used a solution of pyoktanin, 1–500. On ulcerated surfaces an ointment of 2, 5, 10 and more per cent. Fuchsin salve has in his hands been more useful than pyoktanin. The pyoktanin pencil moistened with water and rubbed on an ulcerated surface makes a crust or dry eschar, under which cicatrization often goes on. Even the pure drug may be dusted on a sore surface, as it is not irritant and absolutely non-poisonous. Its application in many cases is followed by a diminution of pain. Blue pyoktanin is used for injections. These should be made with full antiseptic precautions. The author states that while he has not succeeded in curing any inoperable cases of cancer, others have, and that the results in some of his own cases have been remarkable. He sums up as follows: The use of aniline dyes in malignant growths is a palliative treatment —no cure. In *very* rare cases the treatment may cure. Soft growths are not so well influenced as hard ones, and those of bones not so well as those of the soft tissues. A scanty blood supply is favorable, and disseminated growths are unsuitable. The treatment requires a perfect knowledge of aseptic and antiseptic surgery; otherwise it will do harm. It requires perseverance and patience for weeks and months. In closing, the establishment of cancer hospitals is suggested, where systematic treatment can be carried on.

Operative Indications in Traumatic Stricture of the Urethra.

In the *Annales des Maladies des Organes Génito-urinaires*, September, 1893, Legueu and Cestan give the results of their observations on cases seen in the service of Professor Guyon. There were seventeen cases in the wards almost simultaneously. The lesion most often sustained is as follows: The ruptured portion of the urethra is usually on its lower wall, and the upper is either intact or else there is at least a strip of unruptured mucous membrane at this point. On this account operations are not to be done in these cases which contemplate a complete division of the canal. The obstruction in old cases comes at times from fibrous masses which are separated from the urethral canal by a less dense tissue, thus allowing of their removal without injuring the urethra. Excision *en masse* is to be avoided for the same reason. When there is no fibrous mass to be felt in the perineum, then dilatation may be tried, but when they exist, then dilatation is only to be used as an adjunct to other measures. Internal urethrotomy may be done as a primary measure when dilatation is impossible, or it may be employed as a secondary measure after dilatation has failed. Internal urethrotomy is not regarded as curative, it being often followed by a return of the obstruction. In the milder cases in which the stricture is small in extent it sometimes succeeds admirably. In performing external urethrotomy when the wound is deep and it is impossible to find the urethra, one of two courses may be pursued: One is to allow the patient to recover and watch, when he urinates, where the urine comes from, and the other is to do a supra-pubic cystotomy and retrograde catheterization at once. The latter is mentioned favorably. Resection of a part of the urethra and immediate suture are advised when the two parts are not separated too widely, too deeply situated, or too much surrounded by hard cicatricial tissue. In some cases a new urethra is constructed by uniting the sound tissues over a catheter. This is left in place three to five days. The surrounding callosities must all have been carefully removed and all granulations carefully curetted away.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Theobromine in Cardiac Dropsy.

Germain Sée (*Bull. de l'Acad. de Méd.*, August 7, 1893) draws the following conclusions from his experience with this drug :

(1) Theobromine, like caffeine, belongs to a class of substances (xanthines) which have a marked affinity for uric acid. The diuretic effect of theobromine is five times as marked as that of caffeine. The diuresis being the result of the action of the drug on the kidney, and independent of any vaso motor influence.

(2) The diuretic action of theobromine in cardiac dropsies is unquestionable. In seven cases, after other diuretics—digitalin, strophanthin, caffeine, etc.—had failed, the urine under theobromine was increased in a few days to two litres, and even to six litres, the dropsy diminishing proportionately. These effects were noted even when albumin was present, and not only the water of the urine was increased, but also the solid elements.

(3) Theobromine possesses advantages over other diuretics in having a direct but harmless action on the renal tissues. On the other hand, strophanthus, digitalis, etc., produce diuresis only by stimulating the heart and contracting the vessels. Caffeine has a distinct disadvantage in causing insomnia.

(4) The effect of theobromine is the same in all cardiac affections. The drug is administered as follows : The patient is kept in a horizontal posture, and the first day is given 30 grains ; the second, 45 grains, in three lozenges of 15 grains each, or in six lozenges of 7 grains each ; the third day, 60 grains ; the fourth day, 75 grains. Under this plan of administration diuresis is so copious, and the dropsy disappears so quickly that tapping is rendered unnecessary. In Bright's dropsy the drug is unreliable.

(5) Theobromine is best administered in capsules or lozenges, as it is insoluble in all ordinary menstrua.

Diuretin is nothing more than theobromine dissolved in sodium salicylate, but solubility can only be obtained by the addition of 4 per cent. of caustic soda, and as a result of this diuretin becomes dangerous. Theobromine can be administered in the dry form, and so differs from lactose, which requires much water to dissolve it. To maintain the good effect secured by the drug, it is well to administer for two or three days, after two or three days of non-interference, 1-120 of a grain of digitalin, or 45 grains of theobromine with no adjuvant, except calcium iodide, when there are signs of oppression.

The Comparative Value of the Hypnotics.

Bardet (*Rev. de Thérap. Medico-Chirurg.*, February 1, 1894), at a recent meeting of the Therapeutic Society of Paris, read a paper on the above subject. He classified hypnotics as follows :

(1) Ethers, which include sulphonal.

(2) Derivatives of aldehyde, such as paraldehyde, methylal chloral, chloralose, etc.. Chloral is the type of this group, and each drug possesses an hypnotic effect proportionate to the amount of chloral entering into its composition. Chlo-

ral, in addition to causing disagreeable after-effects, is often responsible for a cutaneous erythema and irritation of the digestive tract. The derivatives of chloral, such as chloralamide, chloralose, antipyrin, etc., have an advantage in not causing this irritation.

(3) Aromatics (hypnone). These resemble the other narcotics in their action.

(4) Vegetables (piscidia).

(5) Minerals (bromides). These are feeble hypnotics, and produce sleep indirectly by quieting nervous excitement. Sulphonal produces sleep without causing anesthesia, and does not disturb the stomach. Paraldehyde gives good results in the insomnia of alcoholism. Methylal he spoke very highly of, but its effect is fugitive ; it is, however, preferable to chloral, since it does not, like the latter, produce after-dulness and stupidity. In concluding, he recommends the use of the volatile hypnotics, as they give prompt results, and are not followed by digestive disturbances.

In the discussion which followed the reading of the paper, Constantin Paul remarked that the value of each hypnotic would be determined in a measure by special conditions. Thus, for example, children who bear opium badly, bear chloral very well, on account of their vascular resistance. Each case of insomnia demands special treatment, depending on the cause, and the causes are most numerous. He thought it was improper to associate new substances so dissimilar as chloral and chloralose. The first is a powerful cardiac depressant, while the latter has little or no effect on the heart. Codeine he has found to quiet cough, but to be of little value in producing sleep, even when given in large doses.

Huchard remarked that the best hypnotic in alcoholism, in his experience, was opium. It is well supported in large doses of six to eight grains. In the insomnia of cardiac disease chloral cannot be tolerated, but chloralose, in doses of three or four grains, is often well borne. It may be repeated at the end of a quarter of an hour, or an hour at the most. In aortic disease opium is a useful sedative, probably on account of the cerebral anemia present in this affection.

Acute Articular Rheumatism Treated by the Absorption of Salicylic Acid through the Skin.

Bourget (*Therap. Monats.*, November, 1893) proves, from a study of nineteen cases of acute articular rheumatism in which a salicylic acid salve (10 per cent.) was applied to the joint, that the internal use of salicyl compounds is unnecessary. Notwithstanding the efficacy of the external treatment he approves of the internal use of salicylates in small doses, and prefers salacetol in daily doses of fifteen to thirty grains. By the external treatment the pain rapidly subsides, the temperature falls, and the swelling disappears. In the nineteen cases treated by the external method there were complications only in two, and these had slight pericarditis. His conclusions are as follows :

(1) Salicylic acid is quickly and freely absorbed through the skin. The drug passes more readily through the skin of children and the skin of blondes.

(2) The rapidity and extent of absorption will depend upon the vehicle with which the salicylic acid is used. Fats only are available, as absorption with glycerin and vaseline as a base is very imperfect.

(3) An ointment of salicylic acid and turpentine acts very favorably in acute articular rheumatism.

(4) In other forms of rheumatism the ointment is less useful.

(5) In gonorrheal rheumatism the inunction is valueless.

Pancreatic Juice in Diabetes.

Battistini (*Therap. Monats.*, October, 1893) refers to recent experiments with pancreatic juice in the treatment of diabetes, and proceeds to describe the method he employed in two cases of diabetes which had resisted other modes of treatment. The juice was obtained aseptically from the fresh pancreas of a calf or sheep, the gland being divided finely, and allowed to macerate for twenty-four hours in an equal quantity by weight of glycerin. After filtration and addition of an equal bulk of water, injections were made into the sides of the abdomen under most careful antiseptic precautions. The doses of pancreatic juice were rather larger than have been given by previous authors, a gradual increase from five to fifteen or twenty c.c. of the solution being made in the injections. The first patient, who simultaneously was put on a meat diet, received five injections at intervals of about two days, an abscess forming on one occasion. The second patient in the course of three weeks received five injections. The results in both cases were very similar,—the urine increasing in quantity, the specific gravity remaining high, the sugar diminishing considerably; improvement of subjective symptoms being alleged, but no increase in body weight taking place. Inosite was looked for in the urine, but could not be found, and the author is unable to explain the persistent high specific gravity.

Peroxide of Hydrogen in Stomatitis.

Boennecken (*Deut. med. Woch.*, January 11, 1894) calls attention to the importance of disinfecting the mouth during febrile and wasting diseases. He believes that the solutions of potassium chlorate and potassium permanganate, generally employed, are not sufficiently strong to be antiseptic, especially when the contact is short, and that strong solutions are too painful. He speaks very favorably of peroxide of hydrogen, which is non-toxic, free from irritant properties, and is an efficient antiseptic in solutions as weak as 2 per cent. or even less. He states that it destroys fetor in a few minutes, and that its continuous use is followed by a decided improvement in condition of the mucous membrane of the mouth in twenty-four hours.

In the discussion which followed the reading of the paper, Leo stated that he had also obtained good results with the drug, but that in chronic cases solutions stronger than 2 per cent. acted more favorably. Walters spoke highly of peroxide of hydrogen in 5- to 10-per-cent. solutions in mercurial stomatitis. Bing regarded potassium chlorate as equally effective as peroxide of hydrogen.

The Derivatives of Creosote in Pulmonary Phthisis.

Under this title, De Grazia and Casaretti (*Rif. Med.*, September 22, 1893, and *Brit. Med. Journ.*, November 18, 1893) have investigated the action of benzoyl-guaiacol, carbonate of guaiacol, guaiacol carbonic acid, and carbonate of creosote in phthisis. They have given these drugs to patients in various stages of the disease by the mouth and by the rectum, seeking to ascertain their effects on the physical signs, on the various functional disturbances, on the quantity and quality of the sputa, on the proportion of bacilli contained in them, and on the weight of the body. Lastly, they have tried to ascertain which of the compounds is best tolerated.

(1) Benzoyl-guaiacol, a crystalline, tasteless, inodorous powder, of slight solubility. According to Sahli, this substance passes through the stomach unchanged,

being split up in the intestine into guaiacol and benzoic acid. Clinical trials by Sahli, Walzer, Hughes, and others have led to somewhat conflicting ideas as to its efficacy. It is generally agreed that "benzosol" is well borne even in large and repeated doses. One case of poisoning is, however, recorded by Von Jaksch, in which death was produced in a diabetic subject apparently by its irritant effect on the intestine. But this is the only bad result reported. The authors record results with using the drug in four cases of phthisis, and these were highly favorable. The dose varied from 0.2 to 3 grammes daily, commencing with small quantities and increasing them gradually. In each case there was a marked improvement both in the physical signs and in the symptoms, and an increase in weight.

(2) Carbonate of guaiacol. This drug resembles "benzosol" in physical characters. According to Seifert and Holscher, while the drug passes unaltered through the stomach in health, it is in the presence of the fermentation which so often complicates phthisis, decomposed in that organ, where it acts as an antiseptic, reducing bacterial growth and greatly improving the patient's condition. Five fresh observations of the present authors lend support to this view. The drug was never observed to cause signs of intolerance. With regard to the other drugs tried, the conclusions may be briefly stated as follows :

(3) Guaiacol carbonic acid, in a dose of one to three grammes daily, even if used many days in succession, was well borne, whatever might be the stage of the disease.

(4) Carbonate of creosote was well borne, either by the stomach or rectum ; and pure guaiacol, if given by the latter method, was generally supported without much inconvenience.

With regard to all the above-mentioned drugs, except "benzosol," there seems to have been no great advantage to the patient in giving them, as they in no way altered the physical signs or relieved cough, etc. "Benzosol, on the other hand, seemed constantly to improve the catarrh, cough, and expectoration, but it did not cause the disappearance of bacilli from the sputum."

The External Application of Guaiacol in Febrile Diseases.

In the *Revue Gén. de Clin. et de Thérap.*, February 3, 1894, is published the method of lowering temperature by the external application of guaiacol as pursued by Stolzenburg in Senator's clinic. One to four cubic centimetres of guaiacol are spread upon any region of the skin, generally the extremities, and then covered with a sheet of impermeable court-plaster. The odor of the drug resembles that of iodoform. Within an hour after the application the temperature drops, with profuse perspiration. The antipyretic effect is continued from five to eight hours, and generally the temperature drops two or three degrees, and after large doses, five degrees. Unfortunately the temperature soon rises after the fall to its original height. In addition to tuberculosis it has been employed in typhoid fever, pneumonia, and articular rheumatism with the same results. Stolzenburg draws the following conclusions from his studies :

(1) Guaiacol applied to the skin in the manner described acts as a rapid and powerful antipyretic.

(2) The first dose in an adult should not exceed two c.c., or at the very most 4 c.c.

(3) No injurious effects are observed after moderate doses; large doses may produce collapse.

(4) The rapid reaction prevents the continuous use of guaiacol.

(5) The drug exerts no influence on the general malady.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

Small-Pox in Pregnancy.

Richardière (*Revue Obstétrique et Gynécologie*, June, 1893) uses the following method of treatment with pregnant women suffering from small-pox at the Aubervilliers Hospital: The patient is immersed daily, for a quarter of an hour, in a sublimate bath. When the eruption is abundant two baths are given daily. The external parts are continually covered with compresses soaked in Van Swieten's liquid (sublimate 1 part, alcohol 100 parts, distilled water 900 parts). Sublimate injections are administered twice a day. This treatment is followed without modification after delivery or abortion. Only in patients in whom the temperature rises are intra-uterine sublimate injections given. When required they prove very efficacious, and always cause the complication to disappear. This treatment has answered well, only one patient felt the effects of the sublimate. A moderately severe attack of stomatitis occurred, so that the mercury was replaced by permanganate of potash.

Nephritis of Pregnancy.

Odebrecht (*Centralblatt für Gynäkologie*, No. 30, 1893) relates the case of a primipara, aged 27, who caught cold at the beginning of her ninth month of pregnancy, and uremia set in, followed by convulsions and partial coma. The urine was scanty and completely coagulated. No pains had set in. The eclampsia ceased after large doses of morphia and wet-packing. Twenty-four hours later the patient, perfectly conscious, declared that the movements of the child had ceased; the fetal heart-sounds could not be heard. Five days afterwards a dead, macerated child was discharged. Two circumscribed effusions of blood of the size of a walnut were found in the placenta. In Odebrecht's opinion, they accounted for the death of the fetus. Neither casts nor blood-corpuscles nor pus-cells could be found in the highly-albuminous urine. Hence the local disease was not acute nephritis, but rather the kidney of pregnancy, and the sudden chill increased renal congestion, setting up eclampsia and uremia in the mother and killing the child through placental apoplexy.

This case is an excellent example of the relation between renal disease in the mother and death of the fetus.

Symphyseotomy.

Harris (*Annals of Gynecology and Pediatry*, February, 1894) read a paper before the Obstetrical Society of Philadelphia, January 4, 1894, in which he gave credit to Dr. William T. Coggin, of Athens, Ga., for having performed the first symphyseotomy in America. In 1890, while in Heidelberg, he heard from an

Italian physician an account of the remarkable success of the operation in Naples, and then decided to prefer symphyseotomy to craniotomy in any case which should come under his care, in which one or the other should be presented as the alternative. His case was that of the wife of a miner, a tall and apparently well-made primipara, 23 years old, and five feet seven inches high. She had been in labor fifteen and a half hours when he was called in. He tried to deliver by forceps, but found the pelvis too much contracted to admit the passage of the instrument, being of the justo-minor type, and computed to be one-third smaller than the average. He opened the symphysis after sixteen hours' labor, applied the forceps, and in delivering the fetus, which proved to be a male of eleven and three-quarter pounds weight, noted that the pubic bones became separated two and three-quarter inches. There was no injury produced by the extraction of the child, either to the sacro-iliac synchondrosis or to the soft parts.

Under a proper restraining apparatus the pubes readily united, there was no lameness and the boy did well.

At the same meeting NORRIS reported a case of symphyseotomy performed by himself upon a colored girl, aged 18 years, who had been in labor for ninety hours. She gave the following pelvic measurements:

Interspinous	19½ cm.	
Intercostal	20½ "	
Diagonal	19 "	
Circumference	70 "	
External conjugate	16 "	
Intertrochanteric	27 "	
Diagonal conjugate	9 "	scant.
Estimated conjugate	7 "	scant.

The forceps was fruitlessly applied and the symphysis then opened through an inch and a half incision in the abdominal wall. The greatest separation of the symphysis during the passage of the child was not more than one inch. The child was born asphyxiated and died. The measurements of the child's head were as follows:

Bitemporal	8 cm.
Biparietal	9½ "
Occipito-mental	14½ "
Occipito-frontal	12 "
Trachelobregmatic	9¾ "
Occipito-frontal circumference	32 "

The child, female, weighed eight pounds.

On the third day the woman developed cystitis, due, probably, to catheterization with an unclean catheter before coming into Norris's care. This condition gradually improved under appropriate treatment. On the fifteenth day the patient developed mania, beginning as a condition of mild hilarity with irrepressible loquacity. This condition steadily improved, however. The symphysis united well.

GYNECOLOGY.

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D., AND CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D., AND H. D. BEYEA, M.D.

An Operation for Uterine Prolapse.

TERRILLON, Paris (*Centralblatt für Gynäkologie*, No. 41, 1893), advises a method of operation he has applied in twenty cases of uterine prolapse with good results. The vagina is almost completely closed by means of denuding 4 to 8 longitudinal strips of vaginal mucous membrane, about one inch in breadth, separated from one another by a half inch of normal mucous membrane, and extending from the ostium vulvæ to within three-fourths of an inch of the uterus. The strips are sutured together by means of interrupted silk sutures. If, after uniting the prepared strips, the perineum is not sufficiently closed, he does a small perineorrhaphy after the method of Emmet, using silver wire sutures.

Report of a Year's Work in Minor Gynecology.

CHARLES P. NOBLE (*Medical and Surgical Reporter*, November 25, 1803) states that there were 145 minor surgical operations performed in the Kensington Hospital for Women, Philadelphia, during the year, divided as follows:

Perineorrhaphy and trachelorrhaphy	24
Dilatation and curetting	28
Perineorrhaphy	20
Trachelorrhaphy	2
Colporrhaphy	10

General operations, thirty-seven, consisting of the removal of polypi, papillomata about the genitals, scraping operations for cancer in cases advanced too far for radical measures, closing of two vesico-vaginal fistulæ, excision of mammary glands, etc. There were no deaths in this series of cases.

With reference to the kind of suture to use in the operation of trachelorrhaphy, the author states that his results have been uniformly good with each kind of suture, and hence he uses catgut now because they do not require removal, and this is an advantage when the perineum has to be repaired at the same time, which usually happens.

The Emmet operation has been followed in the forty-four cases of perineorrhaphy, and primary union was secured in all but two cases. Catgut sutures are used high up in the sulci and silk sutures through the torn ends of the levator muscles and for the remaining sutures. The author considers the results from this operation more certain and satisfactory than from any other in gynecology. Hysterectomy for procidentia is condemned unless the uterus is invaded by a tumor or is of great size. The plan preferred is a high amputation of the cervix, combined with an anterior colporrhaphy, probably after Stoltz's method, and an Emmet's perineorrhaphy, denuding as much as possible to reduce the size of the vagina and the introitus. Such a procedure will cure 95 per cent. of cases of procidentia.

A New Operation for Uterine Prolapse.

Freund (*Centralblatt für Gynäkologie*, No. 47, 1893) describes a method of operation he has improvised for uterine prolapse. The method is most suitable for those cases where marked heart- or kidney-disease exists, and in weak and debilitated old women, as no anesthesia is required and the operation is almost bloodless. He almost completely closes the vagina by means of four continuous silver wire sutures, each one encircling the vagina like a puckering string, one above the other, and inserted into the submucosa. The first suture is inserted in the vaginal submucosa very near the cervix, the needle being withdrawn at short intervals to be reinserted into the suture-hole of exit, until the vagina is encircled and the needle is withdrawn through the first or primary suture-hole. The uterus is then partially replaced and the suture tightened until the vaginal opening at this point is reduced to the size of a finger. The other sutures are inserted in the same manner, being separated from one another by an interval of 1 to 2 finger-breadths. The last or fourth suture is introduced within the hymen border. He advises an ordinary needle and silver wire of medium size. The operation is associated with very little pain, the most pronounced pain being experienced while the last suture is being introduced. The advantages of this operation are: that no anesthesia is required; the operation is practically bloodless; no wound is made or tissue removed; it requires but little time or preparation; and that it can be applied under all circumstances, the only contraindication being extensive ulceration. Freund has operated upon seven cases after this method with most satisfactory results.

A New Method of Aiding in the Atrophy of Uterine Myoma Without Removal.

F. Byron Robinson (*New York Medical Journal*, November 4, 1893) records the history of a case of severe uterine hemorrhage due to a large uterine myoma in which no benefit was gained from various forms of treatment. An exploratory incision revealed the uterus and its appendages so extensively and firmly involved in adhesions that it seemed advisable not to attempt the removal of any organs. The procedure adopted was as follows: Each tube was ligated at its junction with the uterus by a No. 14 silk ligature, using a long curved needle with an eye in the end. Fearing that this ligation would not entirely control the hemorrhage it was decided to cut off more thoroughly the uterine blood supply, and this was accomplished by throwing two ligatures around each uterine artery as it ascends along the body of the uterus. These ligatures were applied to the artery for nearly two-thirds of the way down the uterus. The ligation of the uterine artery is readily accomplished, as its presence is easily detected by the fulness and throbbing which occur in many cases of fibroid tumor of the womb. The vessel hugs the side of the uterus tightly and it may be necessary to include in the ligature some of the uterine tissue. The case reported was operated upon one year ago. In three months after the operation an examination revealed that the uterus had shrunk to about half its original size; the hemorrhage had ceased and the woman was gaining flesh rapidly. Six months after operation there was evidence of further decrease in size and the patient felt perfectly well. Another case has been treated by the author after this method, but too recently to warrant a statement of results.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

The Micro-organism of Chronic Rheumatism.

Schüller (*Medical Record*, September 23, 1893) has found a specific bacillus for chronic rheumatism. The organisms are described as measuring 2.6 x 0.85 μ, and are constricted at the middle. They stain well with carbol-fuchsin, but are easily decolorized by acids. They are said to grow fast at 25° C. in the dark. All the ordinary culture media are fitted for their development. Schüller inoculated the joints of rabbits with cultivations obtained from human joints, and succeeded in producing a non-suppurative arthritis analogous to the rheumatoid arthritis affecting man. The chronic rheumatism seems to be an entirely different disease from the acute, from which Schüller has only succeeded in cultivating staphylococci and streptococci, never the specific bacillus described above.

The Excretion of Chlorides in Carcinomatous Diseases.

Schœppe (*Deutsche medicinische Wochenschrift*, 1893, Nos. 46, 47) found:

(1) The relation of the supply and excretion of sodium chloride is not constant in all cases of carcinoma.

(2) The great diminution in the excretion of chlorine in individual cases of carcinomatous disease depends upon the extent of the destructive disease, and also in part upon the amount of chlorine contained in the discharges formed in the process of ulceration. It is further proportionate to the growth of the tumor and the destruction of the body tissues.

(3) The existing diminution of chlorine excretion to be observed in a series of cases does not argue an etiological relationship between the carcinomatous and febrile diseases, as the condition depends upon very different causes.

The Effect of Chloroform Narcosis upon the Kidney.

Rindskopf (*Deutsche medicinische Wochenschrift*, 1893, No. 40) investigated ninety-three cases of chloroform narcosis, paying particular interest to the renal lesions produced. In thirty-one cases pathological constituents such as albumin, tube-casts, leucocytes, and epithelium were found subsequently in the urine. The urine became normal again in about three days. Rindskopf's statistics make him conclude that great culpability is shown in the method of administering the chloroform, which should be given in the smallest possible amount, with the most constant regularity in the supply, so as to reduce the danger of its irritant action to the minimum. Further than this, Rindskopf would counsel surgeons never to chloroform a patient upon successive days, lest the irritation should be greater than the kidney could stand, and so bring about a permanent injury.

DERMATOLOGY.

UNDER THE CHARGE OF
LOUIS A. DUHRING, M.D.,
ASSISTED BY
M. B. HARTZELL, M.D.

Note upon a Case of Scleroderma and its Treatment.

Boisseau (*Journal des Maladie Cutanées et Syphilitiques*, January, 1894) reports a case of scleroderma successfully treated by static electricity. The patient was a woman, 46 years old, who suffered from facial neuralgia, and had a large fibroid tumor of the uterus. The scleroderma, which occupied the dorsal surface of the left foot, was immediately preceded by severe pains resembling in character those in the face. It began at the time of the menopause, and its evolution seemed to be influenced by the condition of the uterine fibroid. The administration of arsenic did not appear to produce any appreciable result, but treatment by means of electric discharges of high potential, caused the complete disappearance of the scleremic plaque.

Linear Atrophy of the Skin with Hyperesthesia of Adjacent Parts

Duckworth reports (*British Journal of Dermatology*, December, 1893) a case of this kind following an attack of enteric fever. The patient was a young man, 15 years old, who, three months previously, had had an attack of enteric fever. The lesions consisted of several stripes of linear atrophy running across the outer part of the left thigh, mostly parallel. The skin was smooth, thin, depressed, *mauve* in color, and rather dusky. Similar parallel stripes running in the same direction existed on the outer side of both lower limbs above the malleolus. In addition to these lesions there was extraordinary hyperesthesia of the adjacent skin, following the distribution of the external and middle cutaneous nerves. There was a similar hyperesthetic condition beside the atrophic lines above the ankles.

The Internal Treatment of Vesicular Eczema.

In view of the failure of local treatment to prevent, in many instances, the extension or relapse of vesicular eczema, Phillips (*British Medical Journal*, January 27, 1894) has made trial of a number of internal remedies.

On account of its marked influence upon the skin in scrofuloderma calcium sulphide was given in a large number of cases, but the result was disappointing.

Ichthyol, given in pill form, seemed in one or two cases to be useful, and in a case of relapsing vesicular eczema of the hands and arms the patient thought this drug more beneficial than any previously employed.

Calcium chloride was given on account of its power to increase the coagulability of the blood in a large number of cases, but without any beneficial effect.

Tartar emetic appeared to the author to be very useful in a considerable number of cases, given in doses of one-tenth to one-sixth of a grain three times a day for long periods.

Thyroid gland feeding gave negative results.

The hypophosphites appeared to be useful in some cases.

The Treatment of Lupus Vulgaris.

The following method of treatment is recommended by Schütz (*Archiv für Dermatologie und Syphilis*, Heft 1, 1894) in lupus vulgaris as being most effective and followed by fewer recurrences than any with which he is acquainted. Under chloroform narcosis all soft tissue and scattered lupus-nests are removed as thoroughly as possible with the sharp spoon. Then the bottom of the wound and about one centimetre of the sound edge is carefully scarified with a Viel's or Squire's knife. After complete cessation of the bleeding, which is usually considerable, the whole wound is several times painted over with a cold saturated alcoholic solution of chloride of zinc to which some pure hydrochloric acid has been added for the purpose of making it permanent. Severe pain, lasting about six hours, usually follows, which may be somewhat moderated by the use of ice-compresses. During the next twelve hours considerable swelling and edema of the neighboring parts occur, but these gradually disappear under dressings of boric acid solution. An ointment of pyrogallic acid (1 : 4) is now applied to the wound and changed three times a day. On the fifth day this ointment is replaced by dressings of boric acid solution frequently renewed; under this dressing the wound again becomes clean. The pyrogallic acid ointment is again applied for four days and followed by the boric acid dressings as before. This second cauterization with pyrogallic acid is followed by a third, lasting three days; and when the wound has been cleansed by boric acid dressings mercurial plaster or iodoform powder and boric acid ointment are applied until healing takes place. The scars are smooth and soft, and the old cicatrices become less prominent under these last applications.

Preventive Treatment of Relapses of Psoriasis.

Bock (*Journal des Maladies Cutanées et Syphilitiques*, January, 1894) is of the opinion that it is possible to prevent recurrences in psoriasis in certain cases, and in others to retard them greatly by the following method of treatment which he has employed with success in a number of instances: After the eruption has been removed by the remedies usually employed, the patient should take a bath of the temperature of 30°–35° C. twice a week, and follow it with the inunction of the following ointment:

℞ Acid. salicylic., ... 5 grm.
Vaselin,
Lanolin, āā . . . . . 50 "

The bath should be taken in the evening, and the ointment allowed to remain over night, washing it off next morning with some non-irritating toilet soap. If the skin becomes irritated, the strength of the ointment should be reduced or the salicylic acid may be replaced by naphthol. Instead of ointments a soap of salicylic acid may be used, the patient rubbing himself with the lather and allowing it to remain until the next morning; or if the skin is irritable, it may be washed off after being allowed to remain on fifteen minutes.

This treatment should be continued for two months, twice a week, then once a week, if there is no sign of relapse, for not less than eighteen months.

BOOK NOTICES.

TREPHINING IN ITS ANCIENT AND MODERN ASPECT. By JOHN FLETCHER HORNE, M.D., F.R.C.S. (Edin.). London: John Bale & Sons, 1894.

In this *brochure* the author has given us a highly interesting account of the operation of trephining. Not the least instructive feature which Dr. Horne has brought out is the antiquity of trephining. It seems certain, for example, that the operation was known and practised in the neolithic period, several thousand years ago. The earliest Greek medical writers speak of trephining as a usual operation. A large number of skulls from prehistoric times have been found in various countries, which bear unmistakable evidences of ante-mortem trephining. In America, the first record of trephining seems undoubtedly to be of ante-Columbian date. The skull in question was taken from the Tuca Cemetery, in the Yucay Valley, Peru.

A favorite method of opening the skull in this period was by scraping with a piece of flint, shell, or glass. A large number of the crude instruments employed in the early history of this operation are reproduced in cuts which illustrate the quotations from the early literature of the subject.

A discussion of the modern application of the trephine precedes the consideration of the operation for such special conditions as intracranial extravasation, abscess, tumors and meningitis, epilepsy, paralysis, idiocy, and gunshot wounds. It is to be remarked that the author has given full credit to American surgeons for their work in this field.

A short chapter upon trephining the spine is included. The work concludes with a very interesting chapter on Remarks on Trephining.

Any one interested in trephining cannot fail to find this work highly interesting and exceedingly instructive.

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UNIVERSITY OF PENNSYLVANIA PRESS,
716 Filbert Street, Philadelphia, Pa.

UNIVERSITY
MEDICAL MAGAZINE

MAY, 1894.

LITHEMIA.[1]

By J. M. Da Costa, M.D., LL.D.

I have selected as the subject of my lecture to-day a disorder of wide general bearing,—lithemia. Lithemia really means blood with lithic acid. Dr. Flint has called this condition uricemia. The last name it bears is uric acidemia. Lithemia is a condition in which uric acid, or lithic acid, circulates in the blood, and gives rise to certain well-defined symptoms. That it means something else, however, besides uric acid, I hope to show you as this lecture progresses. Lithemia—to adopt this name—is a very common disease in this country; indeed, it might be called American gout, for it is the form in which the gouty diathesis shows itself, for the most part, in the American people. It is a disease in which the products that go to form uric acid, instead of being excreted, remain in great abundance in the blood.

Let us briefly review some of the opinions that have been held as to the formation of this uric acid. The oldest opinion is that of Sydenham, who maintained that the peccant product accumulates in the blood in consequence of defective nutrition, or, to speak more accurately, from the result of certain nervous influences; he was thus the father of what is now known as the neuro-humoral view of the morbid state. Then we had Murchison's view, which attributed this disease to the liver. As you know, the liver plays an important part in the oxidation of nitrogenous matter. When the liver is inactive oxidation takes place imperfectly, urea is not properly formed, and uric acid, which is produced in great quantities, accumulates in abundance in the system. Other views have been held which come back to this; that the product

[1] Abstract of a lecture delivered by invitation before the students of the Medical Department of the University of Pennsylvania.

uric acid accumulates in consequence of faulty nutrition, resulting in nitrogenous material that is not properly oxygenated. But lithemia has a wider range than is generally thought; there are products of decomposition which add to its symptoms, and the nervous phenomena become quite varied and prominent.

Now what are the causes that give rise to accumulation in the body of uric acid, or the products of imperfect excretion? These products accumulate because persons do not take enough exercise; they do not oxygenate the waste in their systems. Again, you will find that lithemia is the result, and chiefly so, of people eating more than they can digest; clogging their livers in such a way that nitrogenous materials cannot be got rid of. The income is greater than the outgo, accumulation takes place, and morbid function is the result. All large eaters are apt to become lithemic. Perhaps this will be more impressed upon your minds if I tell you of an historical fact which is of considerable interest. Lithemia and then gout developed in the great Emperor Charles V, and with momentous consequences. I was reading the history of the emperor preparatory to his going into the cloister. As the disease progressed he became more and more melancholy and unfit for work. I will read you the description of Roger Ascham[1] of this historical matter, which will interest some of you, and will serve as an example of how much a man can eat. It is as follows:

Roger Ascham, standing "hard by the imperial table at the feast of Golden Fleece," watched with wonder the emperor's progress through "sod beef, roast mutton, baked hare," after which "he fed well of a capon," drinking also "the best that ever I saw. He had his head in the glass five times as long as any of them, and never drank less than a good quart at once of Rhenish wine." The fulness and frequency of the meals, which occurred between his spiced milk in the morning and his heavy supper at night, so amazed an envoy of Venice that he thought them worthy of especial notice in his despatch to the senate. There was a constant demand for eels, anchovies, tunny, trout, and olives. He was fond of pickled partridges and sausages, omelettes of sardines and beer, venison, fruit, and preserves. His chamberlain, who was an uncommonly observing man, goes on to state in another part of the history: "Long trains of mules came laden, as it were, with gout and bile."

This is an historical instance which may be said to have changed the fate of a certain portion of the world. If the emperor had not grown melancholy and retired to a cloister, certain events would not have taken place in the history of the world. There might have been no independence of the Netherlands, no Armada.

[1] Stirling Maxwell's Life of Charles V.

So you see overeating can bring about results of immense importance. Then there is drinking, which is worse. The consumption of alcohol is a potent cause of lithemia. Then, again, we must not omit the fact that the disease is not only acquired, but inherited. You see lithemic children,—children who have inherited the lithemic nervousness. Here, I think, there is a great field open for investigation. In one of the most recent numbers of the *Nineteenth Century* is an article by the great observer Galton. He finds in 80,000 school-children 14,000 developing nervous symptoms, who should be classed as nervous children. A medical examiner would, I believe, detect inherited lithemia as the cause of a great deal of this nervousness; and when you have nervous children to deal with it is always well to inquire into their antecedents to find out whether the condition is inherited or not.

Having described the causes of the disease, I will now say some words to you about the symptoms. How do you know a person has lithemia? The symptoms are partly those of poor digestion and partly of a disturbed nervous system. A poor digestion shows itself in acidity and heaviness after meals, in constipation, the stools being sometimes clay-colored, at other times black, indicating defective and altered biliary secretion, in a bad taste in the mouth, and also in little ulcers on the tongue and on the roof of the mouth. The nervous symptoms show themselves in irritability, night-sweats, jerking of the muscles, and at times in vertigo and headache. We have also other nervous phenomena, to which I shall presently call your attention in more detail. Then, again, we have pains arising in the lithemic. They sometimes take the form of painful cramps in the legs, or of pain in the tendo Achillis, sometimes of severe neuralgic attacks in the head. All these symptoms, particularly the signs of impaired digestion, are manifest and ought to arouse your suspicion. When you examine the urine you will find it generally of high specific gravity; it throws down a pinkish deposit of uric acid; it is highly acid, and full of pigment.

When further you examine the heart, you will find it acting slowly and irregularly; the pulse not infrequently showing an increased tension, though the heart's action itself may be feeble. You may remember, we studied in our last lecture the weak heart of poisons,—such as alcohol, tobacco, etc. The alcoholic and tobacco heart are apt to have great rapidity of action, whereas the lithemic heart is slow. It is not uncommon to find a pulse of 50 to 60 beats per minute with no change in the heart-muscle, nor even in the tension of the vessels. As regards the sounds of the heart, the first sound is apt to be feeble, and the second accentuated from the increased tension in the vascular system.

From this general description of lithemia let us select some

special points which I think it will be valuable for you to note. Let me give you an instance of how it affects the nervous system in the vertigo that it produces. Lithemia is, indeed, a potent cause of vertigo. Many a person goes through life with lithemic vertigo unrecognized, which, if recognized, could be cured. Two cases have recently come under my observation in which the vertigo was extremely marked, and I will cite them here because they are both those of physicians. In the one, the patient told me that he had vertigo so badly that when he came to a patient's house he could not stand erect, having to lean against the door, and ofttimes would fall headlong in the entry when the door was opened. In the other, the lithemic vertigo was so marked that this physician, of the best of habits, was afraid at times to be seen in the street lest his friends would think, from his staggering, that he was intoxicated. The patients will not believe you when you tell them that all the symptoms are due to lithemia, but consider them the result of a tumor in the brain, or of softening of the brain. Remember that vertigo in its worst forms may be the result of lithemic blood, and this vertigo has certain features by which you can recognize it. In the first place, it is apt to be a morning vertigo; in this respect it resembles closely the vertigo due to stomach disturbance. Again, this vertigo is very rarely associated with headache. And finally you will find, upon close questioning, in addition to the marked symptoms I have already spoken of, that those afflicted are persons who eat a great deal and do not take enough exercise.

Certain other nervous symptoms in lithemia are well worth studying. There are curious defects in sensation, such as anesthesia. I have often met with hyperesthesia, but this is comparatively rare. Lack of sensation on one side of the body may be of lithemic origin. There are also cramps which come on at night in the muscles of the lower extremities. The patient generally imagines himself affected with spinal disease. But you will find, on inquiry, the lithemic symptoms, and an examination of the urine enables you properly to diagnosticate the case. The mental phenomena of lithemia are particularly interesting. One of the most significant signs, indeed, of lithemic blood is to be found in the effect on the mind. The gloom is great, the melancholy that patients suffer from is keen, and it seems to be especially so after a heavy meal, and during the process of their slow digestion it is intense. It is a well-known fact that Pitt, who was a great sufferer from gout, had periods when he retired from public life, on account of the great melancholy produced by this disease. The same thing is true of lithemia where gout does not enter,—that is, gout in the sense in which we understand it. Patients afflicted with lithemia are not only gloomy, melancholy, and irritable, but they are people of sour disposi-

tion, literally acid people. Many more symptoms are said to result from lithemia, of which I shall not here speak, as in doing so there is some danger of going too far. One enthusiast declares that all murders and suicides arise from lithemia. In some cases of lithemia renal symptoms are very marked. There are cases in which we have a high specific gravity of urine, excess of uric acid, at times with the products of suboxidation, oxalic acid, high specific gravity, and albumin in the urine, or irritation of the kidney giving rise to tube-casts, and which simulate Bright's disease. You will find all these symptoms due to lithemic affections, which will pass away under treatment. Irrespective of these symptoms there may be from lithemia change in kidney-structure, there may be a contracted kidney with high arterial tension; but this is rare compared with the form to which I have just called your attention, the functional cases in which the kidney remains sound. It has been supposed, adopting the theory of Roberts, that the reason the urine irritates so much in its passage, and gives rise to irritation in the kidney, is that the uric acid accumulates in the system and becomes, from its excess, a biurate, which is with difficulty soluble, and is irritating, in place of the easily soluble quadriurate which it is when normally secreted.

In discussing with you the diagnosis, this question at once arises, Can we always be quite certain that, given a case with the renal signs I have described,—viz., excess of uric acid or urates in the urine,—it is true lithemia? Let us investigate this. We may have following violent muscular action a similar state of urine. I have always been a little doubtful of the cases of convulsions that have been attributed to a lithemic origin. Even in cases of chorea, in which there is great muscular disturbance, there may be for the time urine with uric acid and urates, which may go hand in hand with it. Therefore, to arrive at a correct diagnosis of lithemia you must, I think, make several examinations, and you must see the patient under different conditions.

A further question presents itself in the diagnosis of lithemia, How can you distinguish it from gout? They are thought by some to be identical. I do not think they are strictly so. There is this difference: as a rule, we do not find any joint-affections in lithemia; now and then there may be arthritic changes, but these go on slowly and do not appear as sudden outbreaks such as we see in gout. But there is close kinship. It is the joint condition that makes the chief distinction between the maladies.

Another interesting diagnostic question is this, We find now and then cases in which we have all the symptoms of lithemia,—nervous depression, vertigo, neuralgia, migraine, and imperfect digestion,—but we do not find the urine of lithemia, not a urine of high specific gravity,

not one abounding in uric acid, nor even in oxalates, not any form of suboxidation, not an excess of urea. Would you call this lithemia? I should, unhesitatingly. I think it is better to adhere to the accurate clinical description, because I see a solution of this difficulty in this way. I told you in the beginning that lithemia was not simply uric acid formation, that it was general disintegration of tissue, and I can see that other products similar to those of uric acid, such as peptones, acetone and the like, may accumulate in the blood and be followed by changes which we as yet do not understand; and, as I have said before, I think we are still right in calling these conditions for the present lithemia. It would, of course, be most desirable if we had accurate chemical tests for the quantity of uric acid found in the blood and the urine. We have no such tests. Even the most recent test, that of Haycraft, does not give us exact results. It is, however, the best test we have, though not strictly accurate. It is by it that Haig has ascertained that the proportion of uric acid to urea in health is as 1 : 33.

Turning from these questions of pathology and diagnosis, we now come to the question of prognosis. Here it is right to say that the disease is remarkable. There is no disease in which it is more important, more valuable, to come to a distinct conclusion as to its nature, diagnosis, and pathology, because you can save people,—you can take them almost out of the grave; you can make miserable lives happy. With this knowledge you see the prognosis is valuable. There are certain structural changes which may occur in the heart and kidneys, but these, compared with the great number of lithemics, are quite unusual.

We shall next speak of the treatment. After what I have told you, how this disease is produced by overeating and overdrinking and lack of exercise, how the oxygenation of these urine products is prevented, how there is more coming in than going out, the treatment plainly presents itself before you. Stop the amount of nitrogenous material ingested; insist upon out-door life and exercise; get the skin function fully to work; this will do a great deal at once. You can cure lithemic headache, in this way, by diet and exercise. What is the best diet for a person forming uric acid and allowing it to remain in the system? My answer is, a vegetable diet, green vegetables, especially spinach, celery, egg-plant, onions, and cabbage,—any diet of that kind, with the single exception of asparagus. If a man could become chiefly a vegetarian he would not be troubled with lithemia. Carbohydrates are not good; starches must be used in moderation. Bread is to be largely forbidden; fatty matters must be taken sparingly, and it is the verdict of lithemics that sugars do the greatest amount of harm. In addition to this, patients must be restricted in the use of

animal foods, unless it be such things as the white meat of chicken and birds, which are not rich in nitrogenous material. Do I forbid meat to my lithemics entirely? That depends upon the case. If I have a patient who will follow my instructions about exercise, who will indulge in athletics sensibly, and will keep on exercising, he may eat meat in moderation as long as he works it off. If I have a sedentary person to treat, I greatly restrict the diet. Oysters and fresh fish are allowable. Whatever articles of food produce acid fermentation in the body must be avoided by the lithemic.

What should the patient drink? Water and plenty of it. Above all, he should avoid alcohol. Patients will tell you that they are accustomed to a certain amount of alcohol, without which they cannot work. If you are obliged to allow alcohol I would recommend it in two forms: whiskey considerably diluted, and a good brand of claret. German wines are bad, and champagne is worse on account of the sugar it contains and the acid reaction which it produces. Many persons will tell you that champagne causes pains in the joints and in the tendo Achillis.

In regard to the matter of taking stimulants, patients will deceive you. I had a case of lithemia recently which I tried in vain to do something for. I was strict about diet and the usual directions as to medical treatment. At each visit to my office I would ask him if he was temperate and what he took at meals. For breakfast he stated he took coffee without much sugar, fish, very little bread, mostly stale, and water. When I came to lunch he said it was plain, but upon his hesitating, I asked him if he took anything to digest his food. He said, "Yes, always a quart of claret!" At dinner he took nothing but fish and green vegetables, and it occurred to me to ask him another question, whether he carried out my instructions about drinking water before going to bed to dilute the acid in the urine. He said he took something to make him sleep, and that "something" was three whiskeys! You see how careful you must be about the statements of patients. If you get them to take water, and nothing else, you will do a great deal for their cure.

Now, gentlemen, a few remarks on the strictly medical treatment.

Among the many articles which have been used I will select those only that I know to be valuable. In the first place, I am an earnest advocate of mild laxatives, especially salines, such as Hunyadi water, Saratoga water, phosphate of sodium. I would recommend their use two or three times a week. This makes the liver act better and enables it to get rid of the broken-down waste material. Among other remedies I have found continued courses of carbonate of lithium very useful. I often give a capsule of two grains of this with a sixth

of the extract of nux vomica, and keep patients on it for a long time with great benefit. When the nervous system is much affected you will also obtain at times good results from small doses of arsenic, but always with the laxatives. Whether there are any remedies which directly act on uric acid is a question. Salicylic acid in the form of sodium salicylate is strongly recommended. I do not approve of this as a remedy for any length of time, as it disorders digestion. A similar agent, salol, I have seen give good results. In regard to the new article, piperazine, I like it so far as I have used it; but I do not think it is the solvent of uric acid it is supposed to be. In outbreaks of migraine of lithemic character you must relieve pain and get rid as rapidly as possible of the uric acid in the system. You cannot wait for the slow treatment of diuretics; you cannot wait for exercise: something must be given for immediate relief, such as small hypodermics of morphine, for large ones will interfere with excretion, and thus accumulate acid in the system. At the same time active purgatives are to be employed. An eminent physician, who has been himself a great sufferer, recommends for prompt effect dissolving the uric acid in the system with acids. It would be risky to repeat this treatment often. To prevent a recurrence of the attacks, diet is all-important.

THE PHYSICAL AND PHYSIOLOGICAL BASIS OF COLOR.

By James Wallace, M.D.,

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The sensation of color is primitive and incapable of description. No one, for example, can describe the feeling which is produced in him by contemplating red or blue. It is entirely an attribute of the individual. It is not in any extensive degree a matter of contrast, such as is the case between heat and cold, or light and shade. Green does intensify red, and after a prolonged contemplation of either of these colors, there is a feeble awakening of its complementary, but neither weakens the other as heat and cold. On the contrary, each stands out with more boldness when placed in proximity with the other. What is true of red and green is also true of orange and blue, as well as yellow and violet. The decomposition of a beam of sunlight by means of refraction through a prism reveals to us an extended series of colors ranging from dark-red through yellow, orange, green, blue, indigo, into violet. The alteration in the direction of the various color-rays is

greatest in the violet, and diminishes as we approach the red. As a result of this dispersion we perceive the colors successively, and therefore separately. If the colors are recombined by another prism, we then perceive them simultaneously, and their individuality is lost in the combined sensations which constitute white light. Our perception of a color is, therefore, dependent on an impression made upon our eyes by rays which correspond to a limited portion of the spectrum. The simultaneous perception of rays corresponding to two different portions of the spectrum may produce the sensation of white light without necessarily the remaining portions of the spectrum being included. It is evident that if the sum of all the color sensations results in the impression of white and the combination of two simultaneous color sensations produces the impression of white, whatever essential is produced in the first case must also be produced in the latter. In the human eye simultaneous impressions are easily produced, a luminous circle is easily made by a burning stick whirled around in the hand. A rapidly-rotating wheel with colors properly placed produces the sensation of white. The colored lights from two lanterns thrown upon a screen will produce white light if suitably arranged. We may with advantage consider first the physical construction of the luminous waves and then observe the organs which are fitted to receive them.

To understand the phenomena of light we must assume that light is a transmission of energy from a luminous source to our eyes. The force acting on the molecules of transparent matter held in equilibrium by mutual attraction and repulsion, forces them asunder on the one hand and crowds them together on the other, the elasticity of matter now reverses the relative conditions, and what was at first an expansion becomes a contraction. The course of this phase has been an area bounded by curved lines. There are three dimensions to consider: the length which corresponds to the course of the wave and the two directions at right angles to this and to each other. The single phase of such an undulation would, therefore, assume, we will say, the shape of an egg, or perhaps a prolate spheroid. As each phase is completed, four new undulations take the place of the primitive one, in accordance with the law that the intensity of light diminishes as the square of the distance. Whatever form we give to such an undulation must be equally the form of the contiguous ones, since the two factors are the mutual attraction and repulsion of the molecules of matter, set in vibration by the luminous force. Such a diagram is represented by Fig. 1, in which the apex of the triangle represents the origin of the light, and the base represents its expansion; within each of these undulations are arranged the various wave-lengths of the spectrum so as to reach the eye simultaneously and produce the sensation of white. This, o

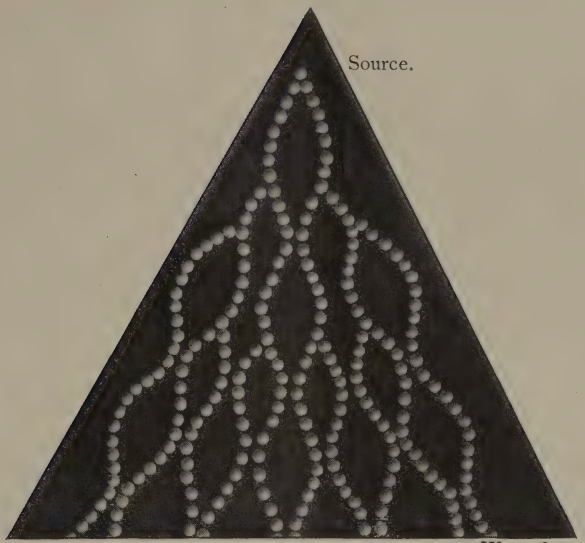
course, only represents what takes place in one plane. The imagination must arrange innumerable planes bisecting this one, in order to conceive of the expansion of the light-force in the three directions necessary to comprise volume. If we trace the expansion of a single undulation through several phases, we would, therefore, find the solid figure representing a cone. The most satisfactory evidence of the undulatory nature of light is afforded by the interference bands which present themselves under certain conditions. By means of a narrow slit controlled in the size of its aperture by making one of its sides movable and regulated by a screw, we have succeeded in obtaining vertical bands when the slit is held in a vertical position and directed towards the sky or the shade of a lamp. If a strong convex cylinder be held close to the eye with its axis horizontal and the slit be brought up until it is in the principal focus of the lens, we will have a numerous series of sharp, horizontal lines, which are more numerous and also broader in proportion as the slit is made narrower. We have photographed in this way the bands, and present them in Fig. 2.

By means of a similar experiment with the diffraction gratings, it has been determined that the waves of the different portions of the spectrum neutralize each other, and produce bands that are dark, when two series of waves are made to intersect each other at a very slight angle. From this has been deduced the law that luminous waves travelling in the same direction, if they encounter each other in opposite phases or, which is the same, are following each other a half wave-length apart, extinguish each other and produce equilibrium in the ether or darkness to the eye. In this way the length of the wave of red light (line *A*) has been determined to be $\frac{1}{1315}$ of a millimetre. Yellow light (line *D*) $\frac{1}{1698}$ of a millimetre. Extreme violet (line *H*) $\frac{1}{2542}$ of a millimetre.[1] Reducing these ratios to whole numbers, which are approximately the same, the wave-lengths of these colors stand to each other in the proportion of 425 for red, 325 for yellow, 221 for violet, or let us say, 4 for the red, 3 for the yellow, 2 for the violet. The red waves are not quite multiples of the violet.

We will omit for simplicity's sake the other colors, and confine our attention to the arrangement in a single undulation of these unequal wave-lengths. A diagram representing these various waves must show in the same distance four — waves of violet light, three waves of yellow light, and two waves + of red light, such a diagram we show in Fig. 3, where the red waves are situated on the axis of undulation, the violet waves on the periphery, and the yellow intermediate. The number of vibrations of each corresponds to its length,—viz., two,

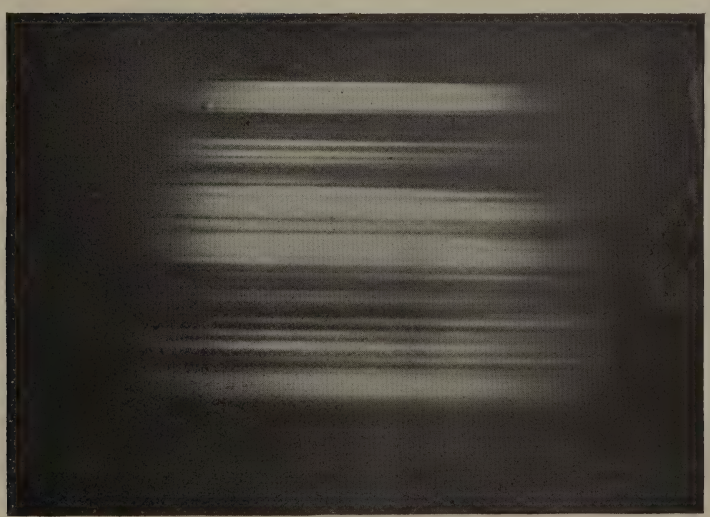
[1] Lommel, Nature of Light.

FIG. 1.

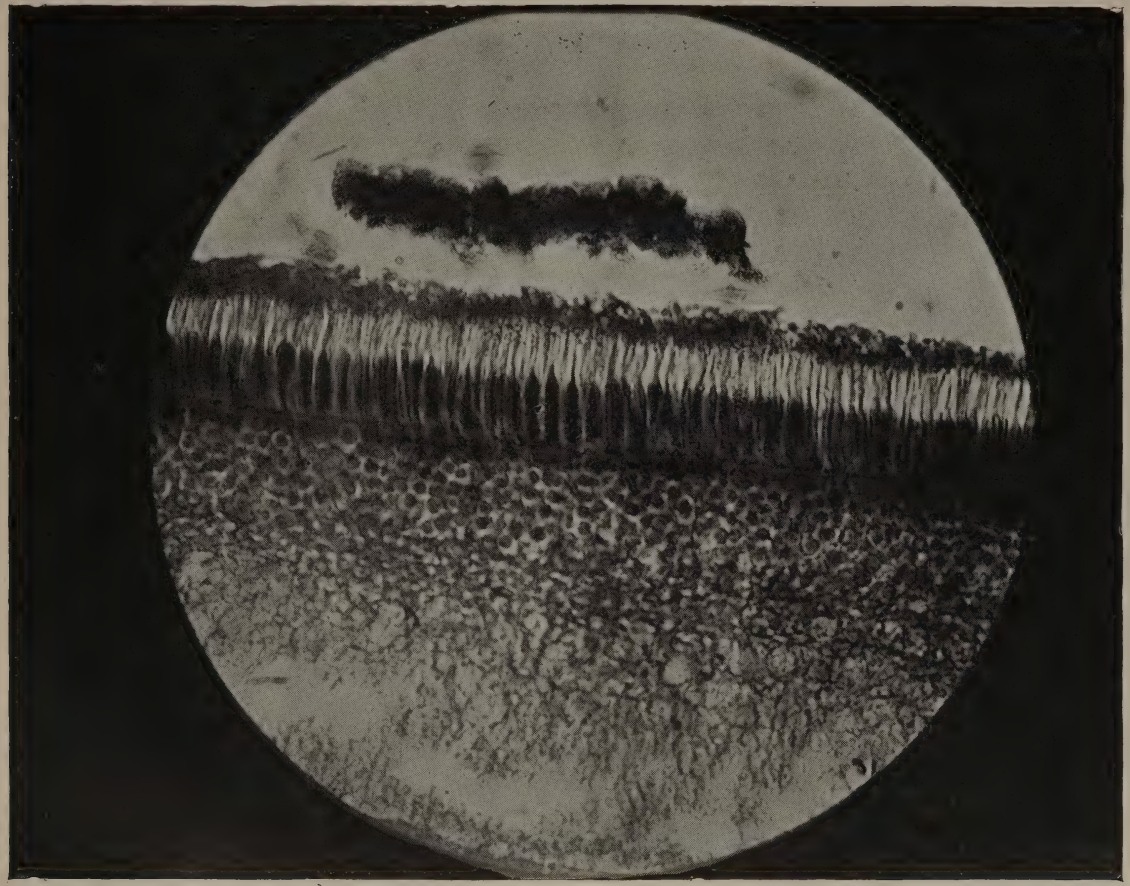


SCHEMATIC REPRESENTATION OF THE PROPAGATION OF LIGHT

FIG. 2.



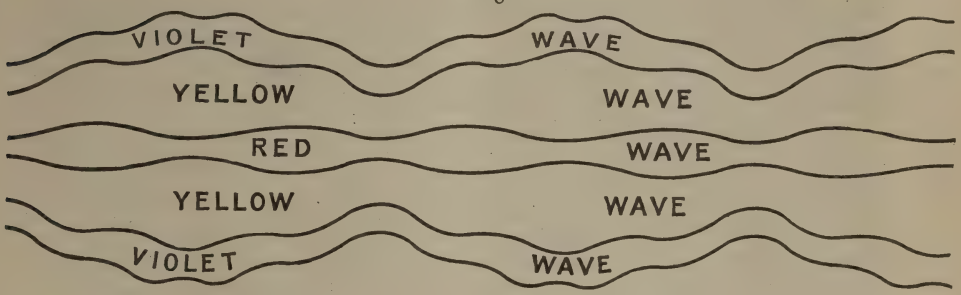
PHOTOGRAPH OF THE INTERFERENCE BANDS SEEN THROUGH A SLIT.



Human Retina, Layer of Cones, × 600 Diameters.

three, four. A color wave whose times of vibration would be double, or any other even number of times, that of another would have its period of contraction occurring during the period of expansion of the other wave, and would thus produce an equilibrium or darkness. For this reason, beyond the extreme red and violet, are colors which extinguish each other, and this portion of the spectrum is invisible. The

FIG. 3.



wave-lengths of the extreme visible colors are less than in a ratio of 1 : 2,—commencing at the violet and going towards the red. It is evident from this that each undulation has two phases, one of lateral expansion and one of contraction, the phase of one undulation must be the reciprocal of the phase of its adjacent undulation, or the phase of expansion of one undulation of the phase of contraction of the contiguous one. The same rule will apply in the arrangement of the vibrations within the undulation. If we were to assume that only three vibrations occurred in each undulation, then if we trace the innermost and the outermost we have also traced the intermediate. The ether waves of the inner and outer vibration would necessarily give rise to the wave of the intermediate vibration. Let us increase in imagination the number of vibrations to seven, to correspond with the usual division of the spectrum, then if we have numbers one and three of the series, number two will also be present. As a matter of fact, if we have one and three, red and yellow, for example, we see number two, orange. To understand this we must take one color alone, say red. Each undulation will, therefore, have at first only the vibrations of the red waves, which pass through the centre. As the periods of expansion and contraction of the molecules occur, the surrounding molecules are alternately drawn towards the axis of the undulation and repelled from it, producing secondary vibrations in all the molecules of the undulation. The vibrations of the red waves would thus produce orange or yellow. The defective eye often sees red as yellow or

orange; notably in perimetry when the red test object is held in the periphery. The so-called complementary colors are capable of producing white light. By observing the ratio of their vibrations we find that they are as 2 to 3. We may say, therefore, that light waves arranged around an axis with periods of vibration in the ratio of 2 to 3 produce a complete undulation. When the red light is withdrawn, and white light is substituted, the effect is green light and not white. Green must, therefore, be the mean effect of the residual vibrations of an undulation after the withdrawal of red, that is, yellow and blue waves are vibrating on either side of it. This is not only a subjective phenomenon, it is also apparent in what are known as colored shadows, where a red light intercepted by an opaque object gives rise to a green shadow, a blue light in the same way to an orange, and a violet to a yellow. In these cases the resultant effect would be a vibration of the molecules of ether of a definite number of times in each undulation, precisely similar to what would be produced by a green light. Borrowing a phrase from Keppler's third law, we might say that the times of the vibrations within an undulation are proportional to their distance from the axis.

All bodies vibrate in some measure, the rapidity of vibration is proportional to the length, density, and thickness of the body. If the variation in bodies is only in one of these elements, we may say that the rate of vibrations varies accordingly; supposing the density and thickness to be constant, the vibrations would vary in proportion to the length. That this is so every one can prove by observing the increase in pitch in a violin, as the vibrating string is made shorter by the finger. In the apparatus of vision we would therefore look for some modifications of the percipient elements which would correspond to the rapidity of the vibrations. For blue waves we would expect shorter elements, or else shorter and thicker; for red we would look for longer elements and thinner ones. As a matter of fact, the color red is perceived the most acutely of all, especially at a long distance. We would, therefore, expect to find the longest percipient elements in the macula lutea. We also know by experience that the color blue is visible in the periphery to a greater extent than any other. We would, therefore, expect to find in the periphery shorter or broader elements than in the macula lutea, Both these conditions may be obtained from the investigations of anatomists who have explored this portion of the human body. We would simply call attention to the first photo-micrograph of the cones accompanying a previous paper in this journal[1] which exhibits a variation between the smallest and the longest in the proportion of 1 to 2, which

[1] Norris and Wallace: A Contribution to the Anatomy of the Human Retina, etc.—UNIVERSITY MEDICAL MAGAZINE, March, 1894.

is precisely that of the violet and red waves. The portion of the section photographed was very near to the region of the macula lutea. We ought to find more long cones than short ones, as red is perceived so much better in central vision than blue. The cones are nearly all so long that we had difficulty in finding their terminal loops which were hidden in the pigment layer, one or two, however, can be made out.

Color perception would thus be determined by the structure of the retinal cones, possessing a range in length equal to the relative vibrations of the red and violet. A defect in the development of the retina which consisted in the absence of long cones would thus produce color-blindness for red. This was suggested to me by Dr. William F. Norris in the discussion of the previous paper on the anatomy of the retina. This point may be verified by some fortunate investigator who obtains an eye for examination known to have been color-blind for red during life. Color-blindness for red is a common one, and it is easily seen that long cones might be entirely absent from an eye; middle-sized cones could hardly fail to be present if there were already long and short ones, although short ones might be absent with the existence of long and middle-sized ones. We should therefore have two forms of color-blindness easy of demonstration,—namely, violet-blindness and red-blindness. Violet-blindness is rare. We can also have another condition,—namely, partial or complete absence of both extremes of sizes and a disproportionate number of the intermediate sizes. We think this condition can explain the phenomena of green-blindness in this way. The color sense is normally composed of three elements, red, yellow, and blue, all other colors are mixtures and can be resolved by the eye into two primaries. While each portion of the spectrum has a definite period of vibration, and therefore should produce an entirely distinct sensation, in point of fact, every wave-length is resolved by the eye into a simple or a mixed color sensation; an admixture of the third primary will extinguish part or all of the colors in the intense sensation which we call white, and which is due to the vibration of all the cones. In the case supposed, the extreme long and extreme short cones are diminished in number or entirely absent. Green, which produces a mixed sensation of yellow and blue, would thus excite all the intermediate cones and the resultant would be white of more or less intensity. To a green-blind person, green appears as a dirty white or gray. Although he can distinguish yellow or blue separately. But so does violet, and the two colors are confounded. The explanation of the violet appearing gray is very simple. The short cones being absent, violet produces no effect and is dark, the small amount of white light reflected from it moderates this into a gray, or a little mixture of green with the violet would add a little white, just as a little violet in green would add a little shadow to the white.

The absence of the extreme long cones explains similarly the blindness for red, and the impurity of the red affords the explanation of the gray or dirty tint that it possesses. The color-blind patient for red thus sees in violet, the mixed color, only the blue. We thus see in our range of color perception the limits marked by red and blue, and as we approach a complete octave we find the sense of red becoming slightly excited to be entirely extinguished at either end of the spectrum, when the wave-lengths have become even multiples of each other. Although the ultra violet end may be extended if we shut off the red.

In conclusion, we desire to summarize these various portions of our subject as follows: The seat of the perception of red is in the longest cones, when these are not present red-blindness occurs. The seat of yellow perception is in cones shorter than the red. These are never absent, and no such a phenomenon as yellow-blindness exists. The seat of blue perception is in the cones of smaller but not the smallest size. Blue-blindness is likewise unknown. Color-blindness is thus limited to two varieties,—first, red-blindness, in which there are no long cones to respond to the vibrations of the red waves; and, second, green-blindness, in which both long and short cones are absent, and the remaining elements are those which excite the sense of blue and yellow; if both are excited by green light, all the elements are thus thrown into vibration and the effect is white light. An objection to this theory will be that every portion of the spectrum emits rays which have a different period of vibration, and thousands of such various wave-lengths exist, but we have not thousands of different color sensations. We think there are in the retina a numerous series of cones, varying in their length to vibrate with the varying lengths of the ether waves; and just as a wave of monochromatic light will agitate the molecules on either side of it into vibration, so the various cones produce vibrations in those surrounding them until vibrations are aroused in those cones which awaken the primary color sensation; a mixed color sensation would thus originate in a wave of definite length, say green, but extending to either side would awaken both yellow and blue. If the retina possessed no cones corresponding to a particular wave of the spectrum, such a color would produce no effect, because no cone of proper length could start the vibrations. In this way we have red-blindness, caused by absence of the long cones, and violet-blindness, by absence of the short cones; green-blindness, which is caused by the absence of both long and short cones, contains also violet-blindness, either partial or complete, according to whether the long and short cones are partially or completely absent. The unequal distortion of the spectrum has caused green to be selected as the middle point, but in relative wave lengths, yellow occupies the middle between red and violet.

THE USES OF VENESECTION.[1]

By Frederick A. Packard, M.D.,

Philadelphia.

It is a trite remark that the treatment of disease resembles the swinging of a pendulum in that it reaches one extreme to immediately rush to the opposite point. Fortunately, however, the comparison does not entirely hold, as, while reaction is apt to occur, something of good is usually gathered in its transit so that in the end we may hope that for each measure used some middle course, evolved from the experience of excessive enthusiasm and unwarranted opposition, will be clearly outlined.

In almost no instance is the analogy of the pendulum more apt than in the matter of venesection. The fearful amount of damage that was done by venesection when it was employed so indiscriminately as to give origin to Le Sage's overdrawn but justifiable caricature of Dr. Sangrado cannot be estimated, and doubtless the reactionary swing of the pendulum was much less destructive; but the rebound has now long ceased to be felt, and we are somewhat in a position to realize the true merits of the method and to look upon both sides of the shield.

The old method of vernal bleedings, formerly looked upon as so essential to the well-being of every over-robust individual past the middle period of life, seems certainly to have been of some value in the days of high living, when strong meat for breakfast with overeating at all of the other meals, and a large consumption of malt liquors and old port, combined with considerable inactivity of body during the winter months, could readily produce a condition wherein much waste material must have accumulated in the system with consequent engorgement of the secretory and excretory organs. In such cases the loss of a few ounces of blood from the arm could not be hurtful, while the relative emptiness of the vein for a short time, combined with the mild hydremia that followed the loss of blood, could not fail to aid in ridding the body of noxious material. At the present time we endeavor to accomplish the same end in similar conditions by the serous outflow from the intestinal vessels produced by saline laxatives. Whether the present method, which presumably causes a temporary increase in the consistence of the blood, is in all cases preferable, seems to me a question well worthy of considerable attention.

The results of bleeding in those who might be called over-nourished cannot justify the same procedure in the case of powerful men with

[1] Read before the Philadelphia County Medical Society, March 14, 1894.

acute disease. Here, as a rule, the strong, bounding pulse is the result of either systemic poisoning by disease products, the increased bodily temperature, or the increased cardiac force called forth by some circulatory obstruction, and is not due to over-stimulation of the walls of the arterioles by retained excrementitious products as in the case of the overfed individual after a winter of sedentary life with over-indulgence in nitrogenous food and alcoholic beverages. The bleeding in these cases may, indeed, soften the pulse, but it does not by any means get at the root of the trouble either directly or indirectly. From bleeding in acute disease in strong men, who recovered in spite of the procedure, to bleeding in all forms of acute illness was a possibly not unnatural step. The fallacy of the reasoning is, of course, now apparent to us.

My first experience in bleeding occurred during my term as resident physician in the Pennsylvania Hospital. During the summer of 1887 a large number of cases of thermic fever were admitted. The majority of the forty odd cases occurred in strong, robust men in the active period of life, who, while at work, were suddenly stricken down. In a large number of these cases the pulse was entirely imperceptible at the wrist. This weakness of the pulse often failed to disappear after reduction of temperature by the external application of cold and the free use of all cardiac stimulants; and in some cases was one of the most striking signs of danger. I had seen a number of cases that puzzled me by the persistence of this feebleness of the circulation before it occurred to me that the veins were distended with blood and that the feeble pulse was in no way comparable in its cause to that following severe hemorrhage. The clear indication to my mind was to empty the distended venous system of a part of its load by removing some of the blood that was obstructing those vessels. Acting upon this view I opened the median cephalic vein of one of the cases, with the result that, as the almost tarry blood issued in a thick stream, the pulse at the wrist became perceptible, then fuller, and finally of quite fair volume, with a general clearing up of the intense cyanosis of the whole surface and some lessening of coma.

That was the first occasion upon which the thought entered my mind that a weak pulse might at times actually indicate the advisability of bleeding. Before that time I had considered that bleeding was only to be employed in cases with strong and bounding pulse.

In cases of croupous pneumonia the time frequently comes when the pulse grows steadily and progressively more feeble in spite of increasing doses of cardiac stimulants. In many of these cases careful examination will show decided increase of the area of cardiac dulness to the right, and especially over the position of the right auricle. At the same time one may see that cyanosis is far in excess of that

accounted for by the extent of lung involved,—in other words, it is not cyanosis from lack of lung area, but cardiac cyanosis from over-distention of the right side of the heart.

The following instance illustrates what bleeding from the arm can accomplish in such cases, although the case unfortunately ended fatally owing to the condition of all of the organs of the body:

On June 12, 1893, A. T., a man aged 40 years, was transferred to my ward at the Philadelphia Hospital from the surgical wards, to which he had been admitted for a burn of the hand. He was a brickmaker by occupation. Upon admission to the ward he was found to be too much distressed by intense dyspnea for a history to be obtainable. He was a large, stout man, with florid complexion and apparently an abuser of alcohol. Dyspnea was marked, the breathing being rapid, wheezing, and accompanied by an expiratory grunt. Physical examination was practically negative, save for the discovery of numerous dry, sibilant râles over the whole chest and fine moist râles in the spinal gutter on the right side. The patient was too ill for perfectly satisfactory examination, all except the dorsal decubitus causing serious opposition upon his part and increase of the dyspnea. During the night after admission he had a violent attack of dyspnea, in which the respirations numbered 60 in a minute.

On the morning of June 13 the dyspnea was very great, the face and chest being markedly cyanosed. There was some cough but no expectoration. The pulse was rapid and feeble. Delirium was so active that straps had to be applied. The urine withdrawn by catheter was acid, dark amber in color, and contained a trace of albumin, with hyaline and granular casts.

When I first saw the case upon this day he was deeply cyanosed, the breathing was shallow, rapid, and labored, the pulse almost imperceptible at the wrist. There was distinct dulness beyond the right border of the sternum. Dr. Riesman, at that time resident physician in the hospital, bled the patient from the median cephalic vein of the right arm. Shortly after the blood began to flow the cyanosis began to lessen, the respirations became fuller and less noisy, the radial pulse became fuller, and after the withdrawal of seventeen fluidounces the condition in general was much improved. After venesection the patient did fairly well for a few hours; then renewed respiratory distress occurred, cyanosis returned and gradually deepened until death took place thirty-six hours ater admission.

At the autopsy there were found: Croupous pneumonia of the right lower lobe in a stage of red hepatization, chronic parenchymatous nephritis, fatty and cirrhotic liver, and the heart in a state of left ventricular contraction and right ventricular dilatation.

In this case improvement as to cyanosis, dyspnea, and feebleness of pulse occurred while the blood was flowing from his arm, the improvement being very manifest to all who were about the bedside. From the condition of the organs found at autopsy it is evident that the man was in no condition to withstand an acute attack of illness; and I am sure that I should have repented it had I seen his organs after death and had failed to give him a chance by relieving the right heart of its distended mass of blood, that as effectually prevented contraction as will a large accumulation of urine temporarily paralyze the bladder.

The question of bleeding in pneumonia has certainly attracted a considerable share of attention, and still presents points upon which there is much difference of opinion. With bleeding in the first stage of pneumonia I have had no experience, inasmuch as I think that I can truly say that I have never seen a case wherein there was the text-book crepitant râle, where I have not also had reason to believe that there was already some consolidation of the lung below the surface,—in other words, I do not remember ever having seen a case of frank pneumonia in the first stage as described in the text-books. I do not doubt the occurrence of such a stage, but, unless my experience is unusual, cases seen at so early a period must be indeed rare.

After consolidation has occurred the heart is in reality the organ most affected, although the lung is the organ diseased. The heart—that is, the right auricle and ventricle—has its work vastly increased by reason of the consolidation. If, now, the heart be unable to bear this strain, the right auricle and ventricle become distended to such an extent that their power is greatly diminished or, perhaps, entirely suspended. With such an enfeeblement of the right heart the pulmonary circulation becomes sluggish, the left ventricle is poorly supplied with blood, and the pulse at the wrist is small and feeble. At the same time cyanosis develops from the failure of the lesser circulation. The condition of affairs above alluded to is also indicated by the presence of a feeble pulse with the heart beating tumultuously, and it may be with a fair degree of force, while percussion will show an area of cardiac dulness extending beyond the right border of the sternum and a distinct area of dulness in the third right intercostal space. In such a case, the letting of a few ounces of blood relieves the right side of the heart from pressure, possibly sufficiently to allow of its continuing its work, at least for a time.

There is, however, another reason for right-sided engorgement besides the mechanical interference with the pulmonary circulation. High temperature and the pneumonic poison are apt to produce such degenerative changes in the myocardium that dilation can occur with

little or no sufficient mechanical cause in the lung. In these cases the value of venesection is not quite so evident, although I think that here also venesection is justifiable if the right heart be over-distended sufficiently to seriously embarrass its working-power.

The main reason for the general lack of belief in the utility of bleeding in the later stages of pneumonia is doubtless the fact that in the experience of many, as in my own, it has been found that but few cases recover after bleeding. This is simply due to the fact that only bad and almost necessarily fatal cases have this distention of the right heart sufficient to embarrass its action to any very marked degree. In the young and vigorous, in non-alcoholic subjects, and in those with sound kidneys, the heart-muscle can keep itself toned up sufficiently to prevent over-distention; and these cases do not die from the heart, but from the lungs or brain. In spite of the fact that some of my cases have died after venesection, I do not hesitate to say that in no case has the bleeding failed to produce some amelioration of the symptoms, and that in all cases it seemed to at least postpone a necessarily fatal issue. I may add that after venesection the cardiac stimulants and tonics may be productive of some benefit, where before the abstraction of blood their use was apparently futile.

Another class of cases has interested me from the same point of view. Just as in pneumonia the chief mechanical stress falls upon the right side of the heart, so in mitral disease it is this portion of the heart that must suffer from the existence of the lesion, although it itself is free from organic disease.

In the summer of 1891, while I was acting as substitute for one of the visiting physicians of the Philadelphia Hospital, a man was brought to the ward shortly before one of my visits suffering with intense dyspnea amounting to orthopnea, with livid, cyanosed skin and mucous membranes, and with distended superficial veins standing out on his neck and forehead like leeches filled with blood. The pulse at the wrist was almost imperceptible; the heart was acting tumultuously, but with a fair degree of force. A loud murmur was to be heard over the whole precordium, but could not be localized, and the direction of transmission was unascertainable owing to the noisy breathing and the large bubbling râles. I told the resident physician to perform venesection if the condition did not shortly improve after a few doses of digitalis and ammonia. The operation was necessary in the course of the evening, and, if I remember rightly, ten fluidounces of blood were withdrawn. The patient could then recline on the bed, and the pulse at the wrist grew stronger. When I saw the man on the next day I would hardly have recognized him. He was lying down with the head and shoulders but little raised from the bed, his pulse was of good force

and volume, cyanosis and distended veins had disappeared, and it was possible to determine the existence of a loud systolic murmur well heard at the left scapular angle. What finally became of the man I do not know, as I soon went off duty in the ward.

This was my first experience with venesection in cardiac disease, although I had for five or six years frequently thought of the possible benefit of the procedure ever since receiving from Dr. Osler, who was then my chief in the University Hospital, an order to either bleed from the arm or tap the right auricle in case the condition of a little boy with marked organic heart lesions did not improve in the course of a few hours,—the fulfilment of which order I was then sincerely glad to find proved unnecessary. Since then I have frequently witnessed the beneficial effect of bleeding in patients with mitral disease, who, I am convinced, would have died from paralytic distention of the right side of the heart had some relief of tension not been promptly afforded.

The following case occurred in my ward at the Philadelphia Hospital the past summer:

W. McG., aged 45 years, admitted June 16, 1893. The patient on admission was suffering from orthopnea and exceedingly tremulous, as if bordering on an attack of delirium tremens. He stated that for several nights he had been unable to sleep. Chloralamide, thirty grains, was given with very good effect, and the patient was comfortable until the following evening. The lungs were normal. The heart was very much enlarged; apex displaced outward and downward as far as anterior axillary line. There was a mitral systolic murmur and marked accentuation of the second pulmonic sound.

Towards evening of June 17, patient was seized with a violent attack of dyspnea,—it was impossible for him to lie down; he writhed from one side of the bed to the other in fearful agony. The heart was acting vehemently, with a high degree of irregularity and arhythmia. The veins of the neck were distended to thick cords. The mitral murmur was much plainer than it had been.

It being evident that the right heart was laboring under great difficulties, and that the orthopnea was probably due to its over-distention, bleeding, as the promptest means of relieving this condition, was resorted to at once.

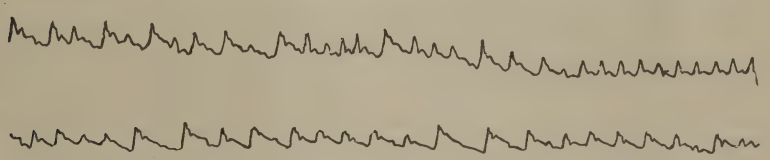
Preliminary to the venesection, a sphygmographic tracing was taken. Immediately afterwards, the sphygmograph remaining *in situ*, the patient was bled sixteen ounces with great relief. (*See accompanying sphygmograms.*)

The dyspnea became much less marked, the pulse slower and more regular, and the subjective condition of the patient distinctly ameli-

orated. The improvement continued, and the patient suffered very little during the remainder of his stay in the hospital.

I will briefly refer to but one other case in this connection. I have the following note in my card-index: "Colored man, admitted to Pennsylvania Hospital from out-patient department, in middle of April, 1893" [at which time I was substituting in the wards for Dr. Morris Longstreth], "intensely dropsical, with extreme dyspnea, mitral regurgitation; no Bright's disease; orthopnea. Calomel, squill, and digitalis; later nitroglycerin. Bled to twelve fluidounces, with immediate relief. Asked for it again. Jugular and other veins, standing out to size of thumb before, became of size of lead-pencil after bleeding." I distinctly remember this case, and his repeated requests to be bled again; but the operation was not repeated owing to the absence of marked indications of right-sided distention.

I was glad to read in an article by Grainger Stewart,[1] upon "Myx-



SPHYGMOGRAMS OF WM. MC.G., TAKEN (*A*) BEFORE BLEEDING AND (*B*) AFTER BLEEDING.

edema treated by Thyroid Feeding," that he incidentally laid much stress upon the value of venesection in certain cases of heart-failure; and that Liebermeister[2] recommends the measure, and has also noted how, as the flow from the vein progressed, the pulse improved.

There is, however, grave danger to be apprehended from repeated bleedings in organic heart-disease, and the measure should be looked upon merely as a means of avoiding a fatal issue threatening at the time.

In uremia venesection does undoubted good where eclampsia is present. How it acts I do not know, but it will sometimes not only stop an otherwise uncontrollable convulsive tendency, but will leave the patient subsequently in better case than before the convulsion necessitated the employment of the remedy. It hardly seems possible that the small quantity of blood withdrawn could remove an amount of poisonous material sufficient to have any decided effect; but that this may be the explanation is rendered probable by the experience of W. E. Hughes as to the value of bleeding in lead-poisoning.[3] It is,

[1] Practitioner, July, 1893.
[2] Deutsche medicinische Wochenschrift, 1891, No. 46.
[3] UNIVERSITY MEDICAL MAGAZINE, 1890–91, III, 22.

however, probable that the removal of blood from the arm allows of an acceleration of movement of the blood-current, thereby relieving the congested kidneys sufficiently to allow of restoration of a part of their normal functional power.

In aneurism bleeding is said to give great relief to the pain that is so prominent a feature of some cases. I have never resorted to its use, chiefly because I have obtained very good results in this respect from the employment of nitroglycerin in the acute attacks of pain, and iodide of potassium in the intervals.

In cerebral apoplexy there is no way of immediately relieving blood-pressure, thereby preventing further extravasation, and allowing the rupture to be closed by a thrombus, than by the withdrawal of blood from the arm. It is to be borne in mind, however, that it is only in the hemorrhagic form of apoplexy that the remedy should be employed. Its use in embolic or thrombotic apoplexy could have none but a deleterious effect.

Finally, venesection has been recommended in severe hemoptysis. At one time I saw much of a man quite far advanced in consumption, who ordinarily was very pallid, of almost cadaverous thinness, yet able to occupy a useful and fairly active place in life. He had a vacation each summer of two weeks, and would return from his holiday with more color, the lips reddened, his face rounded out. Invariably, during the time that I saw much of him, he would remain in his place but a few days after his return, when I would hear that he had had a bad hemorrhage from the lungs, was ill in bed, and was not expected to live. He, however, always recovered after an illness of a few weeks with signs of active irritation, if not actual inflammation of the lung, and would then appear with his face pallid, the cheeks hollow, but fairly strong and able to do his customary light work. Undoubtedly, to my mind, this man's condition was dependent upon his blood-vessels to the extent that they could withstand a certain fixed force of heart and richness of blood (the former probably being the most important factor), beyond which they could not resist, but would rupture into one of his numerous cavities. His holiday did him good in that appetite and digestion improved, but, unfortunately, the strength of the heart likewise increased, and his blood became richer.

In connection with this case I am reminded of a piece of her life history related to me by a lady who, in her youth, was considered extremely delicate, was of slender build, and was at one time supposed to be "going into a decline. One day she had hemoptysis and was promptly bled by her physician. The hemorrhage from the lungs ceased at once, and she had no trouble thereafter. It is to my mind a question whether, if she had continued to bleed into her lung-tissue

and alveoli, instead of having blood-tension lowered by bleeding into a basin, she might not have had inflammatory trouble in the lung, such as we often see occurring in cases of advanced tuberculosis, that might have lit up a possibly latent tubercular disease. That hemoptysis was her only one, and she soon became robust and has so remained.

I admit that to propose to bleed from the arm a patient already losing blood from the lungs would probably arouse serious opposition from the patient and his friends, yet I believe that lowering blood-tension by this or medicinal means is far more to be aimed at, both in theory and practice, than is the administration of ergot which stops uterine hemorrhage, but certainly enormously increases blood-pressure.

It seems incredible that any one should give ergot to a patient with cerebral hemorrhage, yet I have seen such a case. The small amount of blood lost within the cranium signifies nothing so far as the blood itself is concerned, but the pressure of the blood in this particular situation is the important point. Simply because ergot stops uterine hemorrhage, and possibly does this chiefly by contracting the uterine fibres, is no reason for giving ergot in every case of hemorrhage incapable of arrest by ligature. In cerebral hemorrhage lowered blood-pressure rather than increased tension is what is to be desired.

In pulmonary hemorrhage, in the large majority of cases, the actual amount of blood lost does not amount to so much that it cannot be made up; it is the inflammatory after-effects that do the damage in all but exceptional cases. It seems to me that the analogy between pulmonary and cerebral hemorrhage is not exaggerated, and that in both venesection might act beneficially and in precisely the same manner.

I would not be understood to advocate a prompt resort to venesection in all cases of hemoptysis; such a procedure would be far from justifiable in view of the difficulty in hemogenesis in the tuberculous individual; but, had I a pulmonary hemorrhage, I should wish rather for the physician who could lower my blood-pressure by drugs, or even abstraction of blood from the general venous system, than for the one who, because he found that ergot was a good hemostatic in his labor cases, concluded that he could check the flow of blood from a ruptured and damaged blood-vessel by giving me the drug that above all others is capable of increasing blood-pressure by contracting all of the healthy arterioles of the body.

CLINICAL HISTORY OF A CASE OF SUCCESSFUL EXTRACTION OF A PIECE OF STEEL FROM AN IRIS IN WHICH PURULENT INFLAMMATION HAD BEEN ESTABLISHED; WITH PROMPT SUBSIDENCE OF THE INFLAMMATORY REACTION AND RESTORATION OF FULL VISION.[1]

By Charles A. Oliver, A.M., M.D.,

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On September 28, 1892, W. F., aged 20 years, a grocery clerk by occupation, came to Wills Eye Hospital with the history that while opening a pickle-barrel at 8 A.M. on the previous day, a piece of steel became detached from an old hatchet and struck him in his left eye. Much pain and lachrymation were experienced, which were in measure relieved by his family physician, who recommended him to come to the hospital. At the time of the first examination, there was both tarsal and ciliary congestion. The cornea was quite hazy and "needle-stuck," and showed a small linear scar just above its summit. Careful study by oblique illumination and a corneal loupe revealed the presence of a minute black object sticking into a bed of plastic material that occupied a large area in the upper portion of the iris. The rest of the iris-tissue did not seem much thickened or inflamed. A rather deep and a quite dense hypopyon existed in the inferior portion of the anterior chamber. The pupils seemed contracted, though no synechia could be determined. The vision was reduced to $\frac{3}{5}\frac{0}{0}$, and some of the letters of the two diopter type could be read from 15 to 18 centimetres. A faint reddish, although almost imperceptible, glare could be obtained from the fundus by the ophthalmoscope.

In spite of these conditions, the writer had the patient placed under the anesthetic influence of bromide of ethyl and ether, and made a horizontal incision of 8 millimetres in length through the cornea, immediately over the position of the foreign body. This done, he introduced the tips of a pair of fine iridectomy forceps through the wound, so that by turning them on their edge and taking a broad upward bite, the foreign body was grasped in its entire bed of lymph and carefully withdrawn through the incision. The protruding lymph-covered portion of the iris with its contained foreign body, together with all of the iris-tissue that was situated above quite up to the ciliary

[1] Read by title before the Section on Ophthalmology, British Medical Association, August, 1893.

margin, was gently but firmly dragged outward and cleanly incised by a double cut with an iridectomy scissors, thus leaving a small, clean-cut, superiorly-situated coloboma with a narrow pupillary opening.

The patient was immediately placed in bed. Boric acid (gr. x) washings several times daily, tri-daily instillations of three drops of atropine (gr. iv), and the constant use of iced compresses were applied locally. No general treatment was instituted, as the patient's health seemed good, and his digestive functions were in excellent condition.

Under this treatment, the wound was firmly healed in less than two days' time. The cornea was much clearer, and with the exception of the two free extremities of the iris being caught in the corneal wound, thus making a perfectly round and properly-positioned pupil, the coloboma remained intact. The iris was less inflamed, and the remaining portion of the pupil was almost fully dilated. The ciliary injection had partially subsided, the pain had gone, and the hypopyon had almost disappeared.

On October 3, not the least vestige of the hypopyon was left, and the free portions of the pupil were dilated *ad maximum*. Vision was increased to $\frac{5}{45}$. The ice was discontinued. The atropine was reduced to two drops thrice daily, and London-smoke coquilles were ordered. Although the patient was allowed out of bed, yet he was kept quiet and not permitted to expose himself to drafts or to sudden changes of temperature.

Two days later, the eye was perfectly quiet, and uncorrected vision had risen to $\frac{5}{10}$. As the patient was unexpectedly compelled to leave the hospital at this time, collyria of boric acid and sulphate of atropia were given to him, with strict injunctions to report daily to the house surgeon, use the wash and drops, protect the eyes by the smoked glasses, and to avoid any kind of exposure.

At the present writing, more than sixteen months[1] after the accident, the eye, which is normal to casual observation, is white and quiet, and has a corrected visual acuity as good as its fellow ($\frac{5}{5}$).

The case is interesting and instructive, not only upon account of the quick subsidence of a plastic, and, in fact, almost purulent form of iritis by prompt operative interference and most careful antiphlogistic and detergent after-treatment, but by thus saving a delicate organ from almost certain destruction, and bringing its usefulness, as an instrument of sensory precision, to an equality with its perfect fellow.

[1] Present time of Publication.

OTOMYCOSIS.[1]

By George C. Stout,

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Otomycosis is, as its name in part implies, that form of diffuse inflammation of the external auditory meatus and tympanic membrane which is produced by vegetable parasites. The class of affections has been variously named: Otitis parasitica, myringomycosis *aspergillina* (Wreden), myringitis parasitica, aural fungi, fungous otitis, otitis parasitica, and ear moulds.

The name otomycosis, which was first used by Virchow, is probably the one most generally used, and properly so, as it covers all cases of fungi. The occurrence of fungi in the ear was pointed out as early as 1844; but it was not until Wreden, of St. Petersburg (1868–74), fully described the disease that the specialist at large began to investigate these affections more carefully and to publish the results of such study.

At the present time some thirty-four different kinds of aural fungi have been reported by various observers and described with more or less accuracy. These cases have been tabulated by Dr. Barclay, of St. Louis, with much care, but, as he says, it is more than likely that several of them have been confounded, or, that, owing to the writer's lack of botanical knowledge, errors have crept into some of the reports.

In any case there are but two forms of fungi which occur with sufficient frequency to warrant a detailed study here; these are the *aspergillus niger* and the *aspergillus glaucus*, the former being by far the more frequent. It may be well to say, however, that it has been claimed that these two forms of *aspergillus* are only different stages of development of the same plant. A glance at the life history of fungi in general will aid in the study of the *aspergillus*. The fungi belong to a very low order of plant-life; they are flowerless, do not bear leaves, and, strictly speaking, have no seeds, but simple cells, called spores, act in place of seeds. In other words, they belong to the botanical family of cryptogams. Fungi are devoid, also, of the green coloring matter, called chlorophyll, found in the leaves and stalks of many plants. Therefore, since it is through the medium of the chlorophyll, aided by the light, that such plants assimilate their carbon or inorganic nourishment, it is apparent that fungi are dependent on some organic substances for their nutrition, thus living upon dead or decaying animals or vegetable matter (saprophytic), or subsisting on other *living* organisms (parasitic).

These plants or moulds have no distinct roots nor axes, nor leaves

[1] Lecture to Post-Graduate Class, Philadelphia Polyclinic.

like those of the higher orders, but each plant is made up of two parts : (*a*) the vegetative and (*b*) the reproductive.

The vegetative part is made up of a number of filaments, called hyphæ, which fix the plant, as well as extract its nourishment.

These hyphæ interlacing form a dense net-work or web, which is called the mycelium. Some of the filaments forming the mycelium, instead of descending, grow out clear of the surface, and are called aerial hyphæ, and it is on these aerial hyphe that the reproductive portion of the fungus is found,—if it consists simply of a terminal joint of the hyphus it is called a *spore*, and if it is lodged in a sac (or ascus), it is called a sporidium.

A dark place in which the atmosphere is heavy and moist is favorable for the growth of any fungus or mould. And it must be remembered that these moulds found in the ear are not unlike the ordinary ones met in every-day life,—for instance, the green mould which is seen on old shoes, which have been laid away in a damp corner, is similar ; and the blue or green moulds met with on over-ripened cheese are caused by the same *aspergillus glaucus* which is occasionally seen in the ears.

The fungi most often found in the ears are, as suggested above, the *aspergillus niger* and the *aspergillus glaucus*, the spores of which are constantly floating in the air seeking a favorable spot in which to settle down and develop into a lusty mycelium with its constituent hyphæ and reproductive apparatus. These spores having lodged in an ear which is prepared to receive it and furnish it with the requisites of life, as cited above, send out their hyphe, which interlacing form first the delicate veil-like web and later the dense mass, from which the aerial hyphe or fructiferous filaments stand out. Later the free ends of the latter become bulbous and, undergoing higher specialization, give out from the bulbs a number of radially-disposed pins which have the spores on their free extremities. The plant develops fully within twenty-four hours after the deposition of the spore.

You will see in the specimen under the microscope the heads of the fructiferous hyphe, resembling a spherical pin-cushion full of pins, which are radially disposed and whose apparent heads correspond to the spores, following out the simile, the body of the "pins" would correspond to what is technically called the "sterigmata" and the "cushion" to the "receptaculum."

The fruit stalk has been likened also to an *aspergillum* or brush, with which holy water is sprinkled in Roman Catholic ceremonies, whence the fungus derives its name. The microscope is, of course, necessary to recognize the physical peculiarities of the moulds, under it the *aspergillus niger* is seen to differ from the *glaucus ;* the points of

difference are easily recognized with an amplitude of 350, for the receptaculum of the nigricans is *spherical* and *entirely* covered with sterigmata, while that of the glaucus is *oval* and devoid of sterigmata towards the stalk.

Etiology.

Oxygen, the vapor of water, and heat are necessary to the growth of moulds. Organic decomposition and acidity facilitate the process of growth, and the absence of light is an additional factor. It is easily seen, then, that a drop of oil left in an ear until it becomes rancid would render the latter a most favorable locality for the growth of the moulds, for, as a product of the special fermentation of oils and fats, we have a fatty acid and organic decomposition, this added to absence of light, the high temperature, and the presence of moisture and oxygen completes our requisites for mould life.

"Warm sweet oil" and kindred oily and fatty substances have for ages been regarded by the laity as a panacea for every conceivable ache or pain of the ears.

The extent of this belief, together with the fact that oils are so frequently and, I regret to say, so carelessly prescribed by the practitioner, class them as the most common cause of otomycosis.

If an oily substance should be used in the ear it should be carefully removed, and the ear asepticized when the cause for which it was introduced ceases to exist.

Fungi may occur in the ear at any season, or be continued from season to season, and they may be found in any locality. It has been suggested, however, that they are possibly more apt to occur in the damp months of autumn and in subjects who live in dark, damp rooms. The middle-aged are most likely to become affected. *Aspergillus* frequently follows a furuncle or other form of otitis, preferably some disease of the external auditory meatus, which is followed by an abrasion, a fissure, or desquamation of the epithelium. The careless use of hair-pins, tooth-picks, and similar objects in the meatus is an occasional cause. Diabetes mellitus has been mentioned as a possible cause.

Otologists differ very much in their statistics as to the relative frequency of otomycosis. Three prominent otologists claim never to have met with a single case in their practice, while another equally distinguished states that 6 per cent. of his patients were affected by it. An average from the statistics of thirteen eminent specialists shows that .23 per cent. of the combined cases treated by them for all ear affections were effected by aural fungi.

Symptoms.—There is no pathognomonic symptom. In the average case the patient will usually complain of a sense of fulness or stuffi-

ness in the ears, and this "drawn feeling" is held by Dr. Barclay to be "almost unmistakable." This is accompanied by some irritation or itching, often by tinnitus, dulness of hearing, and periodical earaches, all of the symptoms increasing as the disease progresses. Owing to the disintegration of the epithelium a scanty serous discharge usually follows. It will be seen that none of these symptoms are peculiar to this class of affections, but when taken together the diagnosis is not very difficult. A microscopical examination being, of course, necessary for a positive diagnosis.

Upon examination with a reflected light the meatus auditorius is often found to be narrowed from the long-continued inflammation. Owing to this, and to the presence of the growth, an inspection of the membrane is impossible without previous cleansing. The fungous mass has the appearance of "wet newspaper" or "dirty blotting-paper." The resemblance is so strong that a case of "wet newspaper" in the ear was diagnosed *aspergillus* by a careful diagnostician. The mass is unlike cerumen in appearance and, unlike the latter, it will not dissolve in hot water or glycerin.

The usual color of *aspergillus* is a grayish-green or yellowish-green in the glaucus and a chocolate-brown in the niger. This may be modified by dust-particles or foreign substance or cerumen, which latter at times accompanies *aspergillus*, although some observers deny their coincidence. Cases have been reported in which small raised spots of blue-green, brown, or yellow have been observed.

The fungous mass is frequently glazed by the serous effusion from the superficial vessels, which gives it a lardaceous appearance.

If the ear is not cleaned with great care desquamation of the superficial cells often follows the cleansing process, and bleeding and irritation add to the inflammatory condition.

The membrane when cleared will be found injected, particularly the manubrial plexus, and the surface will be moistened by a thin watery discharge. Large flakes of the mycelial net-work may be removed at times, forming more or less complete casts of the canal.

Diagnosis.—The diagnosis would be made from the above symptoms; the microscope, of course, being used for confirmation.

Pathology.—The original site of the growth is usually upon the membrane, or at least very close to it. The early stage is marked by an hyperemia, then a tumefaction. The hyphe as they are sent down between the cells crowd them, and "starves" them, causing desquamation, which is followed by a serous discharge, the corium often becoming exposed.

Should the disease not be interrupted, the membrani tympani may be perforated, and the growth penetrate to the middle ear; a very

obstinate condition resulting when the attic and antrum become affected.

Prognosis.—The prognosis is good as to ultimate recovery. All symptoms may disappear after a single treatment, or it may persist for some time under the most careful treatment.

Aspergillus may recur if the conditions of life under which it was developed are not changed.

As stated above, if the middle ear has been encroached upon, the trouble is more difficult to eradicate.

Treatment.

The methods of treatment which have been suggested in these affections have been most numerous, but they have for the most part the same two objects in view: (1) to end the life of the fungus, and (2) to thoroughly cleanse the parts, and leave an unfavorable abiding place for parasites, transforming the meatus into a pure and healthy locality which new spores would find sterile and unfit soil for procreation. The medicines used with most success in our work here are the peroxide of hydrogen and boric acid. The former for its cleansing and germicidal qualities, and the latter for its desiccant properties united with some antiseptic ones.

The boric acid is more elegant when it has been finely powdered and bolted.

The method of treatment from which best results have been obtained here is the one given below.

The diagnosis having been made, a few drops of sterilized water should be instilled into the canal, and the mass allowed to soak until it is thoroughly saturated. Then carefully syringe the ear with equal parts of peroxide of hydrogen and hot sterilized water, until as much of the mycelium and *débris* is removed as is possible by this procedure. The syringe most convenient and effective for these cases, as well as for ear work generally, is constructed as follows:

The nozzle should be three or more inches long, and of a small external calibre, so that it may be delicately guided by the eye and hand; the glass barrel partially encased with metal indicates the action of the piston, which should be free and even, but allow no leakage; the rings on either side of the base of the barrel, and on the piston end, allow the admittance of the index and middle fingers, and the thumb respectively, thus making it easy of operation with one hand.

The capacity of the barrel is from a half to a fluid ounce.

The auricle held between the middle finger and thumb should be drawn upward and backward to straighten the external canal.

The stream from the syringe should be directed along the roof of

the meatus, and have an inclination slightly downward and forward, thus taking advantage of the obliquity of the drum membrane, and allowing the return flow along the floor.

The stream thus directed will dislodge the bulk of the foreign mass, but it is probable that some of the scales will remain adherent after the most careful syringing, and the unaided eye cannot be trusted to detect them.

The next stage in the treatment will, therefore, be to attach a small wisp of cotton to a delicate carrier in the usual way, soak it in peroxide, and gently apply it to such spots as differ in shade from their surroundings. The peroxide will at times be seen to bubble and boil beneath such isolated spots, thus showing them to be small niduses of disease, and this is often the only way in which they can be detected.

A very small amount of cotton should be used on the carrier, so that when it is introduced into the meatus the eye can see past it to the point of the carrier, thus the probe can be used as a mechanical lever as well as to accurately place the peroxide. The sensitiveness of the parts must be constantly borne in mind, and the most delicate touch only be used.

Having thoroughly cleansed and sterilized the meatus, it should be insufflated with powdered borax, which will insure dryness. This line of treatment should be carried out every few days, or even daily for a time, gradually increasing the intervals between successive treatments until the meatus auditorius externus and the membrani tympani have resumed their normal appearance.

Should the growth have penetrated into the middle ear, a special nozzle may be applied to the syringe for facilitating the process of syringing through the perforation.

Chrysolene salicylate one part to boric acid eight to sixteen parts has been suggested as a substitute to boric acid. Various fluids have been used for cleansing the meatus, and highly lauded by many different authorities. Among them, as a matter of interest, may be quoted: equal parts of absolute alcohol and glycerin; a 2-per-cent. solution of carbolic acid in glycerin; saturated solution of boric acid in water; 2-per-cent. solution of salicylic acid in water; warm water and alcohol equal parts, or of sufficient strength to avoid irritating; Fowler's solution; the 1 : 100 bichloride of mercury solution; chloride of lime two grains to ounce of water; chromic acid ten grains to the ounce; hyposulphite of soda three grains to ounce; solutions of bromine, iodine, chlorine, permanganate of potassium, lead acetate, and so on *ad infinitum*.

The course of treatment first given is the one used in the hospital here, and, as I have said, has proved very satisfactory.

A CASE OF MYXOSARCOMA OF THE RIGHT FRONTAL LOBE, WITH OPTIC NEURITIS; AUTOPSY.

By M. W. Zimmerman, M.D.,
Ophthalmic Surgeon to the Germantown Hospital.

N. R., aged 45, sexton, was sent to me for examination on the 19th of June last, by Dr. Alrich, of Germantown. The patient was one of fourteen children. One sister died from a tumor of unknown character, which involved the right side of her neck; there had been no operation. Another sister has a goitre, and one brother died of pulmonary tuberculosis after a brief illness; otherwise the family history is good.

Fifteen years ago the patient had some disease of the kidneys, from which recovery was prompt and complete, with this exception, he has been unusually healthy. Has never had headache, only occasional, slight discomfort following exposure to the sun. Vision has always been good for distance, but within a few months there has been some difficulty in reading. Has been married eighteen years. His wife, apparently a healthy woman, had one still-born child several years ago, but no other children, and no miscarriages. Mentally the patient has always been somewhat heavy. His left leg was amputated at the knee, in consequence of an accident several years ago.

The first-observed symptom of the present illness was headache, which began about six months ago, and which grew slowly and steadily worse. It has always been frontal, and worse on the right side; lately it had, at times, passed to the left temporal region. The pain was dull, constant, and not influenced by the ordinary causes of headache. Soon after the frontal pain first appeared his wife noticed slight loss of interest in his usual occupations. Within a very few weeks there was noticeable failure of vision, and quite recently he had been unable to read without severe ocular pain. He has had a few attacks resembling petit mal, but thought them unimportant. Three or four of the later attacks were followed by unconsciousness, and some general rigidity, but there was no movement of the extremities or distortion of the face; no loss of power was observed to follow. No defect of sensation or of special sense could be discovered. The only peculiarity of speech was slight, but distinct, delay in beginning a reply; once begun, he finished it in his usual manner. Clipping of words and confluent articulation were entirely absent. The patellar reflex was exaggerated in the sound leg. Memory was unimpaired, and there had been no change in disposition. Vomiting was absent until just before death. Examination of the urine gave entirely negative results.

Externally the eyes presented nothing abnormal; the functions of the extra-ocular muscles were unimpaired. The form-fields were slightly restricted at the periphery, but otherwise complete. The pupils were of normal size, equal, and responded promptly to the normal stimuli. Vision with the manifest correction = R. $\frac{15}{20}$ (?) L. $\frac{15}{30}$. The ophthalmoscope showed violent swelling of both papillæ, the convexity being best seen with a lens of + 6 diopters. The veins were much dilated, and extremely tortuous. There were numerous hemorrhages scattered over the swelling, many being of large size. Distinct changes in the retinæ extended quite to the maculæ, beyond this, only increased tortuosity of the vessels. The appearance was typical of that variety of optic neuritis known as "choked disk."

The conditions present pointed strongly to a tumor of the brain, probably sarcoma or glioma, and subsequent failure to discover any localizing symptoms led to the prediction that it would be found in the frontal lobes of the cerebrum. Positive localization was, of course, impossible, certainly the posterior portion of the parietal lobe could not be excluded. No importance was attached to the headache, although it is interesting that it should have been confined to the frontal region, and worse on the side occupied by the growth. The prognosis was, of course, extremely unfavorable.

Although there seemed to be insufficient evidence to justify a suspicion of gumma, the patient was put upon rapidly-increasing doses of potassium iodide, as the only treatment offering the slightest hope of benefit.

Fourteen days later, the region about the left macula showed marked inflammatory changes, and near the apex of the swollen nerve were several well-defined pink spots, arranged in rays, and, except in color, strikingly like the macular appearance of albuminuric retinitis. Beyond an increase in the swelling, and several fresh hemorrhages, no change had occurred in the other eye.

On July 11, twenty-two days after the first examination, he seemed as well as usual, walked perhaps two blocks, ate a hearty mid-day meal, and about three and a half hours later fell unconscious, vomited copiously, and became extremely rigid, but had no clonic spasm. He died shortly after, without having entirely recovered consciousness.

Forty-eight hours after death an examination of the brain was made by Dr. Charles W. Burr, who very kindly furnishes the following note:

"The dura mater was normal. The anterior part of the right frontal lobe was the seat of an infiltrating tumor, which was not visible on the convex or orbital surface, but which bulged on the median surface, causing a slight depression on the median surface of the left

hemisphere. The pia was non-adherent and not thickened. On section and microscopic examination, the growth was found to be a myxosarcoma. The motor area was not involved."

Owing to a mishap, the entire brain could not be preserved, and no photograph or drawing can be given. The tumor was irregularly ovoid, and about 5 centimetres in longest diameter.

This case demonstrates the well-recognized importance of ophthalmoscopic examination in all cases of obscure headache; in no other way could a correct diagnosis have been made. The patient's illness failed to attract the attention of himself or his family, until three weeks before death; even at this time its serious character was not suspected.

SYNOPSIS OF A CHINESE SECRET; MANUSCRIPT ON SYPHILIS, REPRINTED IN JAPAN, A.D. 1724, ORIGINALLY WRITTEN BY CHIN-SHI-SEI, WHO LIVED UNDER THE DYNASTY OF MING (A.D. 1368–1644).

By Albert S. Ashmead, M.D.,

New York.

The book has, as every book seems to have in that country, two prefaces, one by Dr. Fuya, reciting the difficulties of the syphilitic treatment, the other by Dr. Mochi-zuki, in which it is said that syphilis is a very ancient disease indeed. Before the time of Confucius, a certain Dr. Wah, examined the case of some great dignitary, and observed, on this occasion, that this disease is like the condition of a tree destroyed by an internal parasite. Other diseases, in the opinion of the author and of his countrymen in general, are either the work of evil spirits or of an injurious diet; but the only devil responsible for syphilis is woman.

The disease originated in Southern China. It was fully described for the first time in the Sung and Yuen dynasties. It gradually moved northward.

The author of this book had been for twenty years a specialist of old men's and children's diseases. He afterwards studied venereal diseases.

Medicine is hereditary in the author's family, and he represents the eighth medical generation. He wishes himself, therefore, to be

credited with the possession of many a marvellous secret. His opinion as the author as to the first cause which originally produced the disease is that in the South, humidity and heat combined to produce a filthy compound in women, under the influence of *darkness* (one of the heavenly elements of the Chinese).

Among the circumstances favorable to contagion, he mentions sitting on the public water-closets in the streets, talking with syphilitic persons, sitting closely with them. Sometimes the husband communicates it directly to the wife, sometimes the father transmits it to the offspring, without contamination of the mother: that is our well-known Colles' law.

The book is made up mostly of questions and answers. Here are some of them,—

Why are there so many different names for syphilis, the poison being the same? There are different degrees of resistance to the invading poison, according to the constitution of the individuality, and to the channel by which the poison penetrates into the body. Syphilis, having originally arisen in the hot moisture of the South, where frost and snow are unknown, where the snakes and the reptiles do not feel the necessity of hibernating in the ground, but generate filth and mould at the surface, out of this conception arises a positive element, the *Ki:* there is a Ki, an evil spirit, for every disease, and this is the special *Ki* of syphilis. When man is attacked by this belligerent spirit, there follow eruptions and wounds, which vary with the individuals. This Ki is originated in women.

The same diversity which we find in syphilis appears in small-pox, whose eruptions may be white-spotted, scarlet, pea-shaped, or resembling flax, or silkworms. But most eruptions of small-pox are pea-shaped; hence, the Chinese name *To-so*, pea-eruption. Most of the syphilitic eruptions resembling the willow-plum, the disease has been called in Chinese *Yo-bai-so*, willow-plum eruption.

Small-pox seems to be in many respects the opposite of syphilis; it comes from the cold North, it is generated in male bodies before their birth. It is called the northern barbarian's pox, and made its appearance in China in the reign of the Han dynasty, B.C. 200.

Why are there cases of syphilis, where no coitus has taken place? Because there is such a thing as an inheritance of syphilis.

Why do certain persons not contract the disease, however much they expose themselves to it? Because they have bodily immunity.

Why are there severe and mild cases? Because in strong subjects the current of blood being very strong, does not give time to the poison to settle in many places; while the sluggish current of the weaker ones gives it ample opportunity for locating itself.

Why are there so many kinds of treatment, for instance, rubbing in of medicines in the palm and sole, baths and steaming, medicaments for the skin, vaporized lamp-baths, and why is the effect of these different treatments different according to the stage of the disease?

Because there are certain opportunities of attacking the poison which must be taken advantage of.

What is the best opportunity?

When the poison appears on the skin.

Why is it that, when the patient has driven out the poison by medicines and diet, he is still liable to tertiary syphilis?

Because he has had a fool for a doctor.

Can it be determined beforehand in what period of time a cure will be obtained?

Yes, this is my invention and secret (that is Chin-shi-sei's), and, says he, energetically, I won't teach it, and nobody shall learn it from me. There.

The author promises to cure chancre in 13 days, putrefaction of the penis in 25 days, bubo in 13 days, open bubo in 26 days, eruption of the penis (like nail of a drum) in 45 days, small eruption (like sand) within 25 days.

Is the author quite sure that he can cure his patients in the periods indicated above?

Quite sure. Do you know why? It is because the manufacture of his medicine is determined by the five elements wood, fire, metal, earth, water. He means that he makes calculations with these, as a superstitious farmer would with the signs of the zodiac.

Can a syphilitic's wife be protected from contagion by the administration of medicine?

Emphatically no. There is no more use for medicine in her case than there is for soldiers in a country where there is no war.

There are some questions and answers about arsenic stone, vermilion, mercury, calomel, as remedies in syphilis.

Here are some of the author's experiences:

Case I.—A student, 18 years old, from the suburbs, gradually lost his eyebrows and the hair of his head. Body crooked and limbs contracted, so that his doctor treated him for leprosy. I examined his pulse, and found it "deep, abrupt, and unsteady." "This is metal," said I, "controlling the wood (referring to the curious and absurd combinations of the elements, on which Chinese doctors found their diagnosis): it is, consequently, syphilis." He recurred in consequence to the metallic, the mercurial treatment, and cured his patient in a short time.

Case II.—A poet had communicated syphilis to his wife, so that

all his children died in infancy. He was examined, and no trace of syphilis was found remaining. I thought, therefore, that the wife must be the cause of the children's early death. I treated her and cured her.

CASE III.—A man, belonging to the upper classes, aged 40, contracted chancre in September; the following January an eruption appeared all over the body. He used too quick treatment, and the eruption became purplish-black. Pains in bones and joints, and lumps on knees and shoulders. I diagnosticated his case as syphilis, and concluded the poison had been driven inside. Under my treatment he got well.

CASE IV.—A girl, 14 years old, developed a suspicious disease; an eruption appeared on the lower belly and thighs. In examining her I observed that her maid-servant, sitting by her side, had a syphilitic eruption on the neck and face. I guessed at once that the disease had been communicated to the child by that woman. I prescribed the proper treatment, and the patient recovered.

CASE V.—A professor of the University contracted a chancre. After several months he had small lumps in both groins. He treated himself with plasters. New eruptions appeared over his chest, abdomen, neck, face, ears, and eyes. He remained twenty years in this condition. I cured him.

CASE VI.—A man, 60 years old, had had for four or five years a putrefied testicle. "This is tertiary syphilis," says I, "the consequence of some remaining syphilitic poison." Cured in thirty days.

CASE VII.—A soldier had a chancre on the penis, by which that whole organ was finally putrefied to its very root. Cured.

CASE VIII.—A brothel-keeper (male) had chancre during six months. Pains and putrefaction. I saw at once that too many herbaceous medicines were answerable for his condition. I applied mercurial treatment, and the patient recovered in thirty days.

CASE IX.—A government official, aged 30, had been afflicted with a bubo for over a month. When he was in a standing position he felt great pain in the testicles. Cured in eighteen days.

CASE X.—A man, 30 years old, had a putrefaction in his eye, which extended to his nose. Continuous discharge of pus. The patient had been treated for leprosy. Cured by the regular syphilitic treatment.

CASE XI.—A rich man contracted a chancre in the last part of spring; he was well again in the middle of summer. But shortly afterwards an eruption appeared on the palms of the hands. After a year, ringworms on the buttocks and on the back. With syphilitic treatment he recovered.

Case XII.—An actor contracted the disease, but did not like it to be known. He doctored it secretly by calomel, but was poisoned by the mercury. Shooting pains in the body, chills, impossibility to stand upright, in consequence of tremors. Cured in forty days.

Case XIII.—A merchant, 40 years old, had an eruption on the ear, without knowing how he had come by it. Two months later eruptions appeared on his testicles, and again he did not suspect their cause. Three months later he got an eruption on his penis. Was treated for syphilis, and recovered.

Case XIV.—A nurse-girl, 30 years old, had a swelling in her breast, which broke in 100 days. I recognized at once the syphilitic character of the sore. I discovered further that the father of the child was syphilitic, and concluded that the girl had been infected by her young charge. Cured in forty days.

Case XV-—A general, 40 years old, got ringworms on his hands and feet, of a purplish-scarlet color, and shaped liked heaped-up money. The scarlet color soon faded, and was replaced by white. Cured in forty days.

Case XVI.—A son of a friend, 17 years old, had a swelling on the calf of his leg. A sore appeared in his anus. After it was healed, under syphilitic treatment, he got pains in muscles and bones. An eruption appeared over his whole body. His father was unwilling that I should treat the boy systematically for syphilis. After a year he was brought to me in a state of extreme emaciation, and with symptoms of tertiary syphilis. Cured.

Case XVII.—A boy, 12 years old, whose parents were syphilitic, got a ringworm on the neck; his throat ulcerated. After a year he could not swallow, and lost his voice. Recovered under syphilitic treatment.

Case XVIII.—A farmer, 40 years old, contracted a chancre in the spring. He treated himself with ready-made medicines, but became worse the next summer. He treated himself with moxa, without effect. The result was offensive-smelling moxa sores. Recovered under my treatment.

These short histories, which may not be very interesting by themselves, become very much so, when we think that the author wrote them some time between 1368 and 1644, A.D.,—that is, under the dynasty of Ming.

Physicians of the United States.

The physicians of the United States now number 118,453; New York leads with 11,171; Pennsylvania has 9310; and Illinois ranks third, with 8002.—*Medical Record.*

MEMORANDA.

PURPURA COMPLICATING VACCINATION.

In the University Medical Magazine, for November, 1893, page 123, mention is made of two cases of purpura, reported by Epstein, complicating 430 vaccinations. His leads me to report a case of purpura complicating vaccination which was recently under my care. A brief history of the case is as follows:

A. I., age 26 years, enlisted as a private in the United States Army, and was sent out from the Columbus Barracks, Ohio, as one of a detachment of fifteen recruits to join a regiment in the West. One or two days prior to departure from the Columbus Barracks he was vaccinated at one place on the left arm, non-humanized bovine virus in all probability having been used. His journey westward occupied about seven days, during which time his diet consisted of the army travel ration, being principally canned corned beef, hard or soft bread, baked beans, and liquid coffee. During these seven days his clothes were not removed, and he slept as best he could in an ordinary railroad coach. On the night of the day of his arrival at his post, as he was undressing, he discovered that his legs were covered with red spots, and he reported at once at the hospital. When I saw him I found his condition to be as follows: General appearance of having had a week of hard travel; bowels constipated; perhaps a degree and a half of fever; a typical vaccine pustule on left arm, with wide-spread areola about it and swollen and painful axillary glands; both lower extremities thickly marked with purpuric hemorrhages, above the knees in the form of petechiæ, below the knees in the form of ecchymoses, and in places almost confluent. The treatment consisted in administering a brisk laxative and placing the man on the tincture of the chloride of iron, with some brandy, and a milk-and-egg diet, in addition to rest in bed and a lotion of lead and opium to allay somewhat the too extensive inflammation about the spot of vaccination. The purpuric spots passed through the usual changes of color common to cutaneous hemorrhages, and were absorbed in about nine days. During service as an interne in civil hospitals, and also as a medical officer in the army, I have seen a large number of cases of vaccinia, but have never before met with a case complicated by purpura.

Thomas U. Raymond,
First Lieut. and Asst. Surgeon, U. S. Army.

Fort Canby, Washington.

DIABETES IN CHILDREN.

A RECENT rapidly-fatal case of diabetes in a boy of 8 years, being the first case of the kind I had seen, has prompted me to look up the subject of diabetes in children, in such books as I have at hand. Inasmuch as I find the statements somewhat conflicting, except as to the rarity of the disease, I am prompted to give the history of this case.

E. B. A., bright boy of 8 years, had been noticed to be languid and listless for two or three weeks by his parents, who thought him bilious. For a week prior to my visit he had been wetting his bed at night, for which I was called. During this time his parents had observed that he had thirst and copious urination. On the Sunday previous to my visit and on Monday he felt too ill to go to school.

I found the child up, with the symptoms I have described,—viz., excessive thirst, copious urination, loss of appetite, dry skin, languid and inclined to lie about.

Suspecting diabetes, I put the child upon a strict antidiabetic diet, and gave fluid extract of ergot. Examination of the urine gave a specific gravity of 1035, and showed it to contain sugar in abundance.

He seemed to improve rapidly until Thursday; thirst and excessive urination diminished, and he did not wet his bed.

On Thursday he seemed sleepy, had cramps in abdomen, and was constipated. His parents thought his medicine too strong and sent for me hurriedly. I assured them of the harmlessness of the medicine and of its inability to cause such symptoms, as did Dr. William Clark, whom I called in consultation.

The boy died that night, having paroxysms of great pain in the abdomen,—the only thing that would rouse him from the stupor into which he had fallen.

In this case there was no history of exposure to cold, nor of diabetes in any member of the family.

The child had previously been eating a good deal of candy during the holidays and up to the time of his illness.

In the urine of neither of the parents nor of three other children did I find any sugar. The father is rather delicate and the mother neurotic and sallow; one other child has scrofulous glands in neck and some scars.

In Keating's "Encyclopedia of Diseases of Children," Dr. Fowler states that no recoveries from diabetes mellitus occurring in children have been reported; in fact, the disease is here rapidly fatal.

Roberts says the younger the patient the less hope of recovery.

Tyson, in "Pepper's System of Medicine," says he never saw a case in a child under 12 years, but in two cases of that age one recovered.

In Watson's "Practice of Physic:" Condie., 1851, p. 852, the author says, "I had under my own observation, for some time, three children, two brothers and their sister, all afflicted with diabetes." Their ages are not given, but from his language I would infer it was not so rapidly fatal as my case. Another case mentioned by the same author is a child of 8 years, "who regained her health, flesh, and strength for a twelvemonth, and at length sank under an obscure affection of the chest; was treated by creosote and a strict diet." He continues to say a brother of this little girl has lately manifested unequivocal signs of the same complaint, and in him it seems to have been equally checked by the same method of treatment.

I have detected sugar in the urine of another boy of the same family.

In conclusion, I think it prudent to apprize our little patient's parents of the fatal character of the disease, or they are likely to think the medicine too strong.

H. G. NORTON, M.D.

TRENTON, N. J.

CLINICAL DEPARTMENT.

METHODIST EPISCOPAL HOSPITAL.

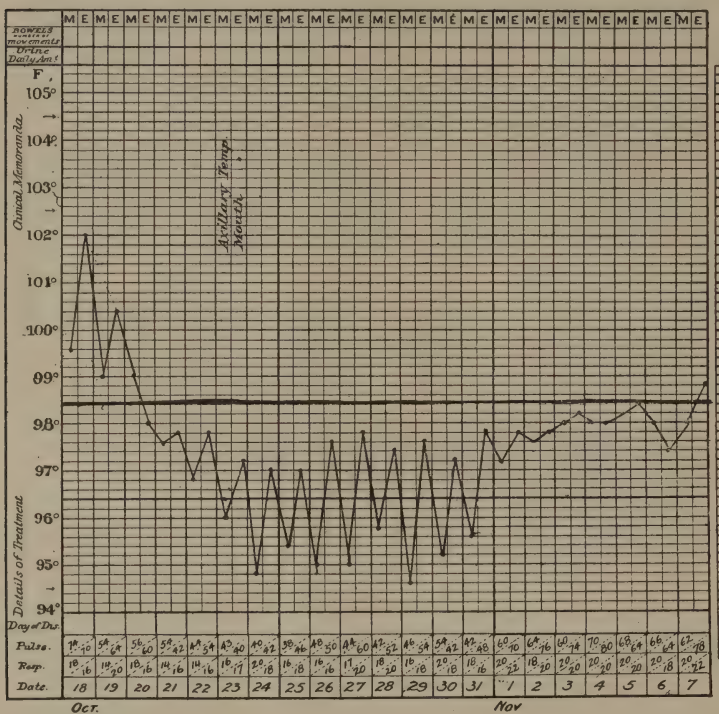
[Service of W. C. HOLLOPETER, M.D.]

A CASE OF TYPHOID FEVER NOTABLE FOR THE SLOW PULSE AND SUBNORMAL TEMPERATURE AT CONVALESCENCE.

D. S. came into the hospital September 29, at the end of the second week of his disease, with the following symptoms: Temperature $103\frac{3}{5}^{\circ}$ F.; pulse 70; respiration 20. Headache, tongue coated and tremulous, anorexia, constipation, flushed face, cough, muco-purulent expectoration, and substernal pain; abdomen tympanitic, tenderness in the right iliac fossa, and in the hepatic region. Urinalysis: specific gravity 1026, acid, no albumin, no sugar. Before admission he complained of malaise, and for two weeks had diarrhea, but continued to work until two days before coming to the hospital, when he was obliged to go to bed. After entrance he developed typical rose-colored typhoid spots, and had several loose passages, characteristic of the disease. As a rule he was constipated.

After three weeks' treatment by sponge baths, stimulation with whiskey, strychnia, and digitalis, with diet of milk and beef tea, his

temperature came down to below normal, and continued subnormal until November 5,—at one time registering 94⅗° F. He sweated profusely at this time, but seemed to be getting stronger. His pulse was very slow. On October 28, with a temperature of 96° F., he was allowed to be up. The patient continued to improve, and was discharged cured on November 13.



NOTE.—In taking the temperature, several thermometers were used to insure accuracy, and all registered alike. Mouth, axillary, and rectal temperatures were compared, and found to vary but slightly.

Appended is the chart showing temperature and pulse during convalescence.

S. M. CONE, M.D.,
Resident Physician.

FOR THE DYSPHAGIA OF LARYNGEAL TUBERCULOSIS.

℞ Cocain. hydrochlor. . . . . gr. x.
Acid. boric. . . . . gr. iv.
Glycerin . . . . . ♏xv.
Aquæ destil. . . . . q.s. ad f℥i. M.

SIG.—Apply locally.

—*Practitioner.*

ALUMNI NOTES.

University Dormitories.

The Committee of the Faculty of the University of Pennsylvania which has charge of the dormitory project has been making a canvass of the various departments of the University to ascertain the number of students who board and room in the vicinity. It is thought that about 1200 of the students room near the University, and the Committee hope to prove by their canvass that they are now paying a price much higher than is necessary under a well-conducted dormitory system.

The Committee affirm that the rooms of the students in most cases are too small, are badly ventilated, and that the light for study is very poor. They hope by presenting these facts that enough interest will be taken to build a dormitory on the present athletic grounds, for which plans have already been drawn up.

Necrology.

Luciano Casanova died at his home in Cienfuegos, Cuba, on January 23, 1894, in the twenty-second year of his age. He had expected to graduate from the Medical Department of the University of Pennsylvania in the spring of 1893, but owing to sudden failure of his health he was obliged to give up his medical studies and return home. The hope that his friends and relatives entertained of his being speedily restored to health was never realized, however, and he finally succumbed to the ravages of acute phthisis.

Dr. John H. Rauch died at Lebanon, Pa., on March 24, 1894, aged sixty-six. Dr. Rauch graduated from the Medical Department of the University of Pennsylvania in 1849. In 1850 he located at Burlington, Iowa, and soon worked his way to prominence by his study of cholera, and its prevention by proper sanitary conditions. During 1855–56 he assisted Dr. Agassiz in the collection of material for his *Natural History of the United States*. He organized the first board of health in Chicago, and was President and Secretary of Illinois State Board of Health from its organization up to 1891. He was a member of the American Medical Association, and a delegate to the International Medical Association at Berlin in 1890, and to the Pan-American Medical Congress in the city of Mexico. During the war he was brigade-surgeon under General Augur, Assistant Medical Director of the Army of the Poto-

mac, and Medical Director of the Gulf Department with the Nineteenth Army Corps.

Dr. Charles Gilman Smith died in Chicago, October 31, 1893. He graduated from the University in 1851. During the Civil War he served in the hospital at Camp Douglas. He was prominent in the medical, literary, and social organization of Chicago.

Dr. William Gray Palmer, one of the best known physicians in Washington, died November 23, 1893, in the seventieth year of his age. He graduated from the University in 1844, first locating in Bladensburg, Md., and subsequently in Washington.

Dr. J. Mussina Bryan died at his home, 3701 Hamilton Street, Philadelphia, March 13, 1894, in the twenty-third year of his age. He graduated from the Medical Department in the Class of 1892. His tastes soon directed him to the practice of surgery, and he was appointed assistant surgeon to the Minor State Hospital, at Ashland, Pa. Subsequently he became resident physician at the Harrisburg City Hospital. But the work proved too confining, and he was obliged to try a change of climate for the benefit of his health. While in Arizona he assisted Dr. George Goodfellow, acting surgeon of the Southern Pacific Railway Company, but was again obliged to abandon his work on account of his health. He spent four months in California at the Coronado Beach, and remained for a time at Dr. Hayan's Sanitarium in Los Angeles. He soon found that the struggle for life was a useless one, and he returned home in December to die. Dr. Goodfellow writes of him: "One could but admire a character so noble and abilities so promising. Gentle and courteous to all, he was a general favorite. That he would have been an ornament to his profession and ultimately a leader, his early work leaves no room for doubt."

Appointed to the Methodist Episcopal Hospital.

At a recent meeting of the Board of Managers of the Methodist Episcopal Hospital, Dr. Thompson S. Westcott was appointed to the medical staff of that institution.

Red Light in Small-Pox.

Tindholm and Finsen, of Bergen, have demonstrated that the skin of small-pox patients is peculiarly sensitive to violet light, and that it is the latter which give rise to pitting. To ascertain the efficiency of red light, one of the small-pox pavilions at the Riverside Hospital on North Brother Island, New York, is to be fitted up with red-glass windows, and with red-glass globes for the night lights.

EDITORIAL.

THE PREVENTION OF TUBERCULOSIS.

The question of the prevention of tuberculosis has recently received a great deal of attention by physicians and sanitarians. A number of medical societies and boards of health throughout the world have discussed the problem. The chief measure which has recently been recommended to prevent the spread of tuberculosis is *registration*. This course was recommended at the recent meetings of the Pan-American Medical Congress and of the American Public Health Association.

The Board of Health of Philadelphia recently proposed to place tuberculosis on the list of contagious diseases, and to require registration of all patients suffering with the disease. The importance of the subject led the College of Physicians of Philadelphia to call a special meeting to discuss the utility of such registration. The discussions at this meeting developed the fact that a great difference of opinion existed among the profession in regard to the value of such a measure. It was claimed on the one hand that it was the only practical solution of the problem, while on the other it was maintained that its provisions entailed unnecessary hardships upon the unfortunate victims, and failed to add materially to the usual precautions which the attending physician should have enforced. The feeling of the meeting was against registration.

The enormous mortality from tuberculosis demands that the subject of prevention be studied unceasingly until a practical solution be found. Every step should be taken, however, only after due deliberation and careful study. It will but bring discredit upon the cause to rush thoughtlessly into extremes that later will be found unavailing. The importance of the question may be best conveyed by actual figures. During the ten years, from 1884 to 1893 inclusive, the records of the Board of Health show that 27,249 deaths from tuberculosis occurred in Philadelphia. During the same period, 17,662 deaths were ascribed to pneumonia. It is not at all improbable that a fair proportion of these were really tuberculous, so that the real mortality from tuberculous affections is higher than statistics show. Other such sources of error occur when the disease attacks the digestive tract, bones, joints, glands,

etc., when the cause of death is given as inflammation of stomach or bowels, blood-poisoning, etc. As an example of the good that may be accomplished by proper preventive measures, it may be mentioned that the once-dreaded small-pox took but 132 lives in Philadelphia in the decade mentioned. Of course, the cases are totally different, and must be treated on entirely different lines, but the time will undoubtedly come when tuberculosis will be comparatively as infrequent.

Just what measure or measures will be necessary to accomplish this end cannot at this time be foreshadowed, but the object is to be attained only by patient, conscientious study and the co-operation of physicians, boards of health, and sanitarians. An important consideration in the matter of prevention, and one too frequently overlooked, was prominently emphasized by Dr. Osler in the discussion above alluded to. It is that for the development of tuberculosis two conditions are necessary,—the *seed* and a suitable *soil*. It will be seen that the latter condition will not be affected by registration. One of the first preventive steps, therefore, is to render the individual unsuitable for the development of the bacillus tuberculosis by improved hygiene in his dwelling and in his daily life.

Owing to strong opposition to the registration of tuberculous patients, the Philadelphia Board of Health postponed the recommendation, for the present at least, and in lieu of this action have issued the following circular for popular distribution. Copies may be obtained on application :

All cases of tuberculous disease of the lungs (consumption) take origin directly or indirectly from other cases. This is now an established fact. Infection, however, is easily provided against if certain simple precautions are taken.

The chief modes of infection are :

First and foremost, *By inhaling dry and pulverized expectoration.*

This is apt to occur when an ordinary pocket-handkerchief is used by a tuberculous person for expectoration. When such a handkerchief is opened, the dried expectoration is likely to be pulverized and diffused through the air. Thus it may be inhaled by others as well as by the patient himself, who is likely to suffer from drawing disease-germs into portions of lung previously unaffected.

Another and the most common source of pulverized expectoration is the habit of spitting carelessly and indiscriminately, as on the floor or ground. The expectoration becomes dried and mixed with dust, and then is easily carried into the air, and is breathed into the lungs or swallowed. The habit, therefore, is not merely offensive, but dangerous.

Second, *By using spoons, cups, and other articles* of the kind which have *not* been *properly washed* after having been used by tuberculous persons.

Third, *By kissing*.

This source of infection is especially to be guarded against in the case of children.

Self-infection may occur, in addition to the ways mentioned, *by swallowing the expectoration*. The habit is likely to lead, sooner or later, to infection of the intestines with tuberculous disease.

There are other modes of infection, as, for example, by consuming the flesh and milk of animals having the disease. But this source is less common, and, as prolonged high temperature destroys the germ, if we cook our food (including milk) thoroughly, there will be no risk of becoming infected in this way.

Knowing the channels of infection, we can easily take effective *precautions*.

(1) *The sputum must be destroyed, and must not be allowed to become dry*. A spitting-cup or flask, containing just enough disinfectant solution to cover the bottom of the vessel, should always be used for the expectoration. Out of doors a pocket spitting-flask, such as Dettweiller's, should be employed.

In the house it would be well to use a pasteboard or paper cup, which should set in a china or metallic holder. This cup with its contents should be burned at least once a day, but if the expectoration is considerable, much oftener.

Pieces of linen or calico about ten inches square may also be carried. These should be used in case of absolute necessity only, and should be burnt as soon as possible afterwards. No piece should be used more than once.

(2) Bedrooms that have been occupied by tuberculous patients *should be thoroughly disinfected* before they are occupied by other persons, and a declaration or assurance on the point should always be demanded.

If the previous occupant of the room never allowed the furniture, hangings, or carpets of the room to be contaminated with the sputum there would be little need of this precaution. But as people ordinarily of cleanly personal habits sometimes show a surprising amount of ignorance or carelessness in this respect, the following points should be insisted on:

(*a*) Carpets, curtains, and bed-coverings should have been exposed to superheated steam under high pressure.

(*b*) The floor and walls of the room should have been properly disinfected. Rubbing with new bread followed by the application of corrosive sublimate solution (a tablet of $7\frac{3}{10}$ grains added to a pint of water) is probably the most effective practical method.

There is no danger of infection from the mere breath of a tuberculous

patient. *The risk is from the dried expectoration.* Danger of social intercourse arises from the neglect of the precaution described.

Fresh air is of the highest importance for tuberculous persons. Hot and stuffy rooms have an evil influence over the disease. Except in special circumstances, the bedroom window should be kept open by night as well as by day.

Note.—The disinfection of rooms that have been occupied by the tuberculous patients, and of beds, bedding, curtains, carpets, etc., will be promptly attended to upon a notice sent to the health officer, City Hall. The Board of Health has erected a most extensive and complete disinfecting plant for the disinfecting of such articles as have been mentioned, and upon notification will send for them and return them after thorough disinfection at a cost merely nominal.

THE D. HAYES AGNEW MEMORIAL.

The Trustees of the University and the Faculty of the Medical Department have decided to apply the State appropriation of $80,000 to the building of the proposed memorial ward, which is to bear the honored name of Dr. D. Hayes Agnew. The law appropriating $80,000 to this object required that a like sum should be raised by the Trustees of the University by May 1, 1894. This amount has been completed by gifts from the friends of Dr. Agnew, Mrs. Agnew, and the Faculty of Medicine. Plans are now being prepared, and the D. Hayes Agnew Ward will be completed without delay. It will include a ward for children, and will be a model in perfection of detail and completeness of appliances. It is hoped that, in addition to the building fund, there may also be secured a sum sufficient for the beginning of an endowment which will provide for the free admission of children and other patients.

To quote from the remarks made by the President at a recent meeting of the subscribers: "Such a memorial will best attest the affection inspired by Dr. Agnew's life of usefulness, and the example of devotion to his profession, both as teacher and practitioner. The grant by the Legislature is a recognition of the work done by the University and its hospital, to which Dr. Agnew gave the best years of his busy life, and the subscription supplementing and securing that appropriation will show how his many friends, patients, and students honor his memory."

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D.

Broncho-Pneumonia in Small-Pox.

Anché (*Archives Cliniques de Bordeaux*, December, 1893) has studied seventeen cases of small-pox with especial reference to broncho-pneumonia. He comes to the following conclusions: Broncho-pneumonia is a frequent complication of small-pox; it occurred in 37 per cent. of the cases observed, 40 per cent. of the adult cases, and 32 per cent. of the infantile cases. The order of frequency in which the different forms occur are acute splenic pneumonia, pseudo-lobular broncho-pneumonia, disseminated broncho-pneumonia. It has occurred in all the severer forms of small-pox. The lesions have almost always been found during the period of suppuration; only in one case, in a hemorrhagic case, pneumonia occurred on the third day of the eruption. The lesion is usually bilateral, on the posterior and lateral borders, rarely anteriorly or at the apices. The lesion is caused by the presence of different species of microbes, sometimes isolated and sometimes together. The streptococci, staphylococci, and pneumococci are the commonest forms.

Treatment of Cardiac Failure.

Curnow (*Lancet*, January 13, 1894), in an article on cardiac failure, sums up the treatment as follows:

(1) Physiological rest to the organ, as complete as may be possible, and carried out in relation to the symptoms.

(2) General constitutional methods to improve the nutrition of the body in general.

(3) Special cardiac tonics to improve the work of the heart itself.

(4) The relief of symptoms in other organs.

Often the author prescribes no drug to a patient with dilated heart for several days until the value of rest alone has been demonstrated. Not only ordinary rest, but hurry and all strains must be avoided. In severe cardiac palpitation, a hypodermic of morphia, $\frac{1}{6}$ to $\frac{1}{4}$ of a grain, either with or without a tablespoonful of brandy, given by the mouth at the same time gives much relief. Food should be taken at short intervals. The best general tonics are arsenic, iron, and strychnine. Digitalis is the only reliable cardiac tonic, and the writer has never seen any "cumulative" action. Venesection may save life when there is engorgement of the lungs with cyanosis. Hydragogue cathartics should be given for the dropsy.

Erythromelalgia.

Eulenberg (*Deutsche medicinische Wochenschrift*, December 14, 1893) reports three cases of the above disease. The first case developed after a long-while decided partial atrophy of the arm and shoulder. The second case developed well-marked cerebral disease which was progressive, possibly a tumor. The third case has still simply the symptoms of erythromelalgia. He compares these cases with typical attacks of syringomyelia, Reynaud's disease, and others, and believes that they belong to a group of cases which are characterized by localized disturbance of sensibility and secretion, together with vaso-motor and trophic interference of the part. The part affected is usually the extremities, and it is frequently bilateral. The seat of the lesion he believes to be the posterior and lateral gray substance of the cord.

Diabetes Mellitus and Cirrhosis of the Liver.

Palma (*Berliner klinische Wochenschrift*, No. 34, 1893). Case one had been ill for eighteen weeks with increasing weakness. On examination the liver was found very much enlarged. The skin was dark-brownish in color, and the mucous membranes were icterode. Examination of the urine showed a considerable amount of sugar and some bile coloring matter. This was a case of hypertrophic cirrhosis of liver with diabetes. The second case, a man aged 43 years, was seized with slight jaundice in August, 1892. In October there was considerable swelling of the abdomen, with much anasarca of legs. The liver was decreased in size. Post-mortem examination showed atrophic cirrhosis. Before death the urine contained a large amount of sugar. He believes that the occurrence of cirrhosis of liver and diabetes in the same patient is a mere coincidence.

Eruptions from Bromides and Iodides.

Crocker (*British Medical Journal*, December 2, 1893) describes both iodide and bromide eruptions. Bromide eruptions may be urticarial, squamous, bullous, or pustular. The first three have nothing distinctive about them. The conglomerate bullous and pustular eruptions are characteristic and easily distinguished from other eruptions, except the almost identical ones of iodine and its salts. Isolated pustules are common. Individually the pustules look like acne vulgaris, but are larger and softer. The confluent form is less common and may form a formidable eruption. It is most common in children. It is a raised, bright-red, vascular plateau, soft to the touch, on which there is a close aggregation of pin-head-size pustular points. The whole patch varies from the size of a three-cent piece to that of a quarter. There is little or no pain, no induration, no central slough, but the exudation dries up into irregular sulcated scab of brownish or blackish color. There is an absence of constitutional symptoms. They seldom leave scars. In highly-developed lesions a pseudo-papillary formation occurs.

Iodide Eruptions.—The bullous eruption is most common. The pseudo-bullas are usually solid, they are raised, are flatly convex, of pearly translucence, with a narrow red areola. They may become confluent. The bromide eruptions are usually pustular, the iodide usually bullous. Iodide eruptions are most common in adults; bromide in children.

Treatment.—Stop the drug, but the eruption may continue to appear for eight or ten days afterwards. Copious drinks should be given. Arsenic should be given internally, and a simple boric acid ointment externally. Do not give iodides in persons with chronic kidney- or heart-disease.

Diabetes During the Second Year of Life.

Dufloco and Danchez (*Revue de Médecine*, June, 1893) report a case in a child 18 months old. The duration of the illness was but fourteen days. The child began to lose flesh rapidly in spite of the fact that it drank two and a half quarts of milk daily. The mother thought the child was teething and did not consult a physician until shortly before the patient died. There was no fever, the pulse was scarcely perceptible, there was cyanosis of the face. The child became comatose. After the death of the child several spots were noticed on its clothing, they were soaked in water. The water was found to contain a high percentage of sugar. Only exceptionally does diabetes in children have a favorable termination.

Diabétide on the Genitals.

Fournier (*L'Union Médicale*, June 6, 1892) uses the term diabétide in the same sense as syphilide. The first symptoms are itching and consequent scratching of the parts. In women there are two forms, erythema and eczema. The latter may be acute or chronic. Acute eczema is characterized by almost phlegmonous reddening of the vulva, with edema and intense itching. Chronic eczema is dull-red and attacks the lower parts of the abdomen and the thighs as well as the genitals. Itching is intense ; there is infiltration of vulva.

In men, first the glans is affected, second the prepuce. On the glans there are (1) erythema, (2) herpetiform eruption, (3) eczema with some desquamation and much itching. On the prepuce there is both erythema and eczema. Gangrenous disease of the penis seldom occurs.

Lessons Learned from the Last Cholera Epidemic.

Lachmann (*Deutsche Medizinal Zeitung*, January 4, 1894) comes to the following conclusions from a study of the late epidemic of cholera :

(1) The spread of cholera easterly and westerly from Astrachan was so rapid that the rivers cannot be viewed either as a cause of the disease or as a carrier.

(2) In Hamburg, cholera bacilli were not found in the water supplied by the city, and after the exclusive use of boiled reservoir water cholera did not disappear from the town, and hundreds of persons who were seized with the disease had never drunk city water.

(3) In small places without a general water-supply there was a higher percentage of cases than in Hamburg, which was supplied with common water.

(4) The dejecta of cholera patients always contain cholera bacilli and the contagion of cholera.

(5) The hibernation of cholera in Europe during the winter proves that the contagion must be more than cholera bacilli.

(6) The experiments of Pettenkoffer and others have shown that cholera contagion is more poisonous than cholera bacilli.

(7) Cholera dejecta cause new infecting-points wherever they dry. Cholera bacilli can be carried to any distance and retain their vitality indefinitely when they are dry.

(8) The spread of the disease occurs through dejecta and material soiled by them.

(9) The greatest epidemics occur in dry seasons.

Cold Baths in Erysipelas.

Gendre and Beaussenat (*Revue de Thérapeutique médico-chirurgicale*, July 1, 1893) believe that cold baths of a temperature from 60° to 65° F. are indicated in all severe cases of erysipelas. Where there is renal complication they cause diuresis with disappearance of the uremic symptoms. The special symptoms which call for the use of the baths are cases where the temperature is above 103° F., where there is dry tongue, delirium, insomnia, or coma vigile. The lowering of temperature averages from one-fifth to three-and-a-half degrees. Six baths have been given in twenty-four hours, with a maximum of twenty-six in the course of the disease. Of 370 cases treated without baths, 23 died; 63 cases treated with baths had but 2 deaths. Quinine, antipyrin, and salicylic acid have but an insignificant action in comparison.

Other authors have used the baths largely, and have had good results.

Forms of Meningitis in Children.

Bezy (*Revue des Maladies de l'Enfance*, December, 1893) believes that the two classical forms of meningitis in children, acute meningitis with fatal terminations, and the more prolonged tubercular meningitis, do not embrace all the variations. He cites some cases as follows:

I. *Tubercular Meningitis with Unusual Lesions.*—A boy, aged 3 years, was brought to the hospital in a state of coma. There were the typical symptoms of meningitis. At the autopsy the lesions of tubercular meningitis were found, but the surface of the brain, instead of being congested as is usual, was pale and anemic, resembling closely a pathological obliteration of the arteries.

II. *Dyspeptic Form of Meningitis.*—A child, 7 months old, was brought to the hospital with constant vomiting. (The child was breast-fed.) From March 20 to April 14 there was no other symptom but vomiting, which was thought to be due to indigestion. On March 20, immobility of the eyes was noticed, finally classical symptoms of meningitis appeared, and the child died.

III. *Abortive Meningitis.*—A child, 6 years old, had typhoid fever at 3 years of age. Six months before observation the child had a severe fright. Shortly after, the mother noticed a squint first in one eye and then in the other. Soon severe pain in head was noted, with vomiting, constipation, and convergent strabismus. The urine was normal. Ophthalmoscopic examination showed a neuro-retinitis, with lesions which resembled albuminuric retinitis. The urine always remained normal, but the child continued blind.

IV. *Infectious Meningitis.*—A boy, 7 years old, was seized with high fever. Severe engorgement of the cervical ganglia was noticed, after a few days typical signs of meningitis, to which the boy succumbed. Another child, 3 years old, was seized with measles, which gradually disappeared. A few days afterwards a pneumonia developed, and a general adenitis appeared. Ten days afterwards he succumbed to meningitis. A pseudo-membranous meningitis was afterwards found in which pneumococci were demonstrated.

V. *Pseudo-Meningitis by Reflection.*—A child of 17 months had eczema. Immediately the eczema was cured, the child showed symptoms which were supposed to be due to meningitis. Death ensued, and a post-mortem revealed acute nephritis.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Uretero-Ureteral Anastomosis.

Kelly (*Annals of Surgery*, January, 1894, p. 70) gives the details of a case of hysterectomy in which the ureter was wounded. The ureter coursed directly over the large myomatous uterus, and, being mistaken for a vein, was ligated and divided. After the removal of the tumor, the divided ends of the ureter were reunited by the method of Van Hook as follows: The distal end was ligated and a slit 1 centimetre long made in it. Into this slit the proximal end was drawn and sutured with fine interrupted sutures of silk. Iodoform gauze was placed over this portion while the rest of the wound was closed. Catheterization was performed every few hours. On the second day urine was passed voluntarily. On the third day the gauze was removed, and on the eighth the sutures were taken out. Convalescence throughout was uninterrupted. Added to the article are illustrations, by Dr. Bloodgood, of a successful anastomosis performed by him on the ureter of a dog two and a half months previously.

Tuberculosis of the Penis.

Malécot (*Annales des Maladies des Organes Génito-Urinaires*, November 1893, p. 838) records a case of tubercular ulcer of the penis. It surrounded the meatus, being of the size of a twenty-centime piece. The patient was a Jewish boy, 14 years old; he had been circumcised eight days after birth. The aspect of the ulcer, its softness, and absence of glandular enlargement excluded the idea of hard chancre. The smooth base, absence of suppuration, its regularity, and regularity of its border excluded chancroid. It was not painful. The patient had for three years been suffering with bladder trouble; micturition being frequent, painful, and at times bloody. Although no bacilli could be detected in the ulcer, it nevertheless produced tuberculosis in guinea-pigs, and so demonstrated its tubercular nature. The boy one year later still had the ulcer in about the same condition, but in general health he had somewhat improved under treatment.

Removal of Four Inches of the Rectum—Anastomosis by Murphy's Button.

Marcy (*Boston Medical and Surgical Journal*, December 7, 1893) gives the case of a man, aged 46, in whom, by a modified Kraske's operation, he removed four inches of the rectum. The lower section was two inches above the anus, and the upper one four inches higher up. The intervening piece was removed, and the two ends joined directly together by means of a large Murphy button. This was surrounded by a continuous suture. The opening into the peritoneum was closed, the posterior wall of the bowel sutured to the divided tissues, and a large part of the wound closed by buried sutures, and a gauze drain inserted. The coccyx and two-fifths of the sacrum were removed. The patient made a satisfactory recovery.

Double Nephro-Lithotomy.

Bell (*Journal of Cutaneous and Genito-Urinary Diseases*, December, 1893, p. 469) reports a case in which he operated on both kidneys for calculi. It was in a patient aged 36 years. The urine contained pus and albumin; there was a tumor in the right renal region; the pulse was rapid and the temperature was of a septic character. The patient was also suffering from urethral stricture. This latter was first operated on by combined internal urethrotomy and perineal section. Two weeks later the right kidney was incised and a calculus of 400 grains removed. Eight months later a similar operation was performed on the left kidney. No urine was passed until two days and twenty-two hours after this last operation. Eight ounces of pus and several small fragments of stone were passed. A sinus persisted, but never discharged urine, only some fragments of stone. The author states that only four cases of double nephro-lithotomy have as yet been placed on record.

Pediculated Tumor of the Prostate.

Leguen (*Annales des Maladies des Organes Génito-Urinaires*, December, 1893, p. 897) gives a case in which a pediculated tumor of the prostate gland was removed by Guyon by suprapubic cystotomy. The patient was 60 years of age, and had been complaining for eight years. The bladder was opened by an incision 12 centimetres long and a pediculated tumor the size of a Mandarin orange revealed. It was firm, and smooth on its surface. It sprung from the left side of the prostate. The pedicle was divided with the galvano-cautery loop, and a tube for drainage allowed to remain in the bladder for a month. Following the operation the tube became closed by clots and the urine distended the bladder and urinary infiltration occurred. This necessitated the opening of the wound. Notwithstanding the favorable nature of the case, power over the bladder was never regained and the patient was compelled to catheterize himself twice daily. The results of prostatectomy, as regards the relief of retention, have been disappointing, and in nearly all cases that are operated on the use of the catheter subsequent to the operation is as necessary as it was before.

Extirpation of a Sarcomatous Tonsil and Portions of the Adjoining Pillars of the Fauces and Posterior Portion of the Tongue.

In *L'Union Médicale*, December 2, 1893, will be found the report of a case of removal of a sarcomatous tonsil with the adjoining infected parts by Verneuil. The operation had been done two months previously, and the patient was a young man 18 years old. The hanging head position and chloroform were used; no tracheotomy being performed. A curved incision in the submaxillary region was made, reaching from the median line to the angle of the jaw. Through this wound the submaxillary and lingual glands were removed, and the facial, lingual, and external carotid arteries tied. The tumor was readily separated in front, above, and behind, but below it was prolonged beneath the base of the tongue. This necessitated dividing the tumor and removing in pieces, the last portion then being taken out without trouble. The only bleeding was from the cut portion of the tongue. It was found impossible to pass a rubber tube through the nose into the esophagus, and, therefore, the wound was left largely open. A solution of chloral was used as a mouth-wash, and the subsequent progress of the case was excellent. The tumor proved to be a round-celled sarcoma.

Appendicitis.

Worcester (*Boston Medical and Surgical Journal*) concludes his article on appendicitis as follows:

(1) Appendicitis itself is not a serious disease, for it is the inflammation of a worthless part of the body. It is, however, apt to recur. And any attack if left to nature or to medical management may cause a fatal purulent peritonitis or a localized abscess.

(2) Appendicitis can be as readily recognized as can any other local internal inflammation. This diagnosis, however, is easiest in the earliest stage of the disease.

(3) No rules can be formulated for differentiating the varieties of appendicitis and of thus foretelling which cases will recover and which will cause dangerous or even fatal consequences; for there is no known way, except by abdominal section, of ascertaining the rate of progress or the extent of the inflammation in any given case; nor of determining the virulence of the contents of the organ or its anatomical situation.

(4) The only rational treatment of the disease is its immediate ending, by excising the organ, before its own death or damage causes like results to its owner. This, at the beginning of the attack, is a feasible and an absolutely safe operation.

(5) The mortality in properly-treated cases of appendicitis is *nil*.

Intracranial Neurectomy.

Louis McLane Tiffany (*Annals of Surgery*, January, 1894, p. 47) gives the details of four cases of intracranial neurectomy, in which he divided the second and third divisions of the fifth nerve. He employed the method of Hartley, of New York. A horseshoe incision was made above the zygoma, and the soft parts and bone turned down. The dura mater and brain being raised access was had to the foramen rotundum and foramen ovale. In the first case the second and third divisions of the nerve with the Gasserian ganglion were well exposed to view. The nerves and so much of the ganglion as seemed to be attached to them were removed. The dura mater was injured, and the bone was not replaced. A large amount of cerebro-spinal fluid escaped, but a perfect recovery ensued. The second case was a man, aged 67 years. In him the middle division of the fifth nerve was divided: recovery was uneventful. Case third was a woman, aged 79 years. The middle meningeal artery was not divided, but in stripping up the dura mater there was a gush of cerebro-spinal fluid; two ounces were sponged away. The second and third divisions of the nerve and the Gasserian ganglion were exposed and excised, and the nerve-ends pushed back into their respective foramina. Recovery was uneventful. Case fourth was a woman, aged 46. The middle meningeal artery was not injured. The author states that as the brain seemed somewhat in the way he raised the dura and opened it, thus permitting the cerebro-spinal fluid to escape. This gave him much more room. This patient also recovered. In uncovering the nerves he begins with the second division. Having uncovered it, he passes a ligature around it with a long aneurism needle, then he strips the dura mater from it backward, reaching the third division and the ganglion. With the same needle a ligature is placed around the third division. Making gentle traction on the ligatures, with a long, sharp curette, he is able to separate the nerves, and take away the adjacent portion of the ganglion, and then cut the nerves at the round and oval foramina. The operations have been long, but recovery prompt. He suggests making an attempt to distinguish the motor from the sensory root of the third branch, and leaving it, only removing the latter.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Salophen.

Köster (*Therapeutische Monatshefte*, January, 1894) has employed salophen in thirty cases of acute articular rheumatism. Four to six doses of fifteen grains were given daily for four or five days, after which the pain and swelling rapidly disappeared. No digestive disturbances were noted, but on three occasions there was vertigo, and four times drowsiness and profuse perspiration followed. Extension of the disease took place twice, and twice relapse occurred; these, however, were promptly relieved by a second course of salophen. The drug was also serviceable in neuralgic affections. One case of severe brachial neuralgia is quoted which had resisted all other known remedies, and which was cured by one-drachm doses of salophen given on four successive days.

Sublimed Sulphur as a Local Application in Diphtheria.

Bäumler (*British Medical Journal*, March 3, 1894) states that he has almost exclusively used sulphur for more than seven years as a local remedy in diphtheria and claims that the effects were infinitely better than those he obtained with the multifarious local applications which he had previously employed. The drug was first recommended by Lagauterie in 1866, and its value subsequently confirmed by Frazer, Liebermeister, and others. In the majority of fresh cases of diphtheritic sore throat, as well as lacunar tonsillitis, two or three applications a day seemed sufficient, the patients in the mean time, when able, gargling with a weak solution of permanganate of potash, and being subjected to such general treatment as the case required. The author is unable to say how the sulphur acts in these cases, and finds no particular difference in the action of sublimed or precipitated sulphur. The dry powder is applied by means of a soft camel's-hair brush to the diseased mucous membrane.

The Action of Electricity on the Pneumogastric,—Is it of Value in Chloroform Narcosis?

Rockwell (*Medical Record*, February 24, 1894) reports the case of a child, aged 6, in which respiratory and cardiac failure from chloroform occurred during an operation for the removal of a nevus. A faradic apparatus being at hand, one pole was immediately placed at the junction of the clavicle and the outer border of the sterno-cleido-mastoid muscle, and a vigorous current applied. Evidences of returning vitality were seen almost immediately, and within a few minutes the heart was again beating regularly. The question arises whether or not the return of heart-power was the result of the faradism. It has been claimed that in chloroform narcosis electricity will do more harm than good, since it tends to stimulate still further the inhibitory function of the vagus. According to Rockwell's experience, however, the ordinary external applications affect the inhibitory fibres of the vagus that go to the heart far less than they affect the accelerating fibres which, in a great measure, constitute the branches that supply the respiratory organs. The

effects of faradism in sustaining respiration in opium-poisoning are well known. In one case of opium narcosis, narrated by the author, the respirations were increased from 2 or 3 a minute to 8 per minute by the use of electricity. In chloroform narcosis, of course, a different condition of things prevails. The heart is under sedation, and any increase of the inhibitory effects of the vagus might be dangerous. Fortunately there is little danger of this in the use of the induced current, at least in ordinary percutaneous applications.

Von Ziemssen has determined by careful experimentation that induced currents have absolutely no influence on the frequency or force of the cardiac contractions, and from that fact the erroneous conclusion has been drawn that induced currents were valueless in threatening death from heart-failure. The facts are that electricity does good in increasing the respiratory activity, the strength of current necessary for the purpose being insufficient to materially interfere with the movements of the heart through its action on the inhibitory fibres of the pneumogastric which control it. Dr. Shrady reports the case of a boy where death was imminent after the use of chloroform. Respiration ceased and the pulse could not be felt, but through prolonged artificial respiration the life of the patient was saved. This confirms the report of the Hyderabad Commission, "that it is of primary importance to keep track of the respiration in administering chloroform; if this is kept up, the heart will give no trouble.

Creosote in Phthisis.

Reynold Wilcox (*Medical Record*, March 10, 1894) finds that creosote in equal dose is superior to guaiacol in phthisis, and believes with Sommerbrodt that the more of the drug the patient can bear without injury the more benefit will he derive, and the sooner will the tuberculosis process be controlled. Hitherto he has been most successful in the use of it in the form of enteric pills,—*i.e.*, pills made up with paraffin, or ones coated with keratin, but now he employs carbonate of creosote,—ten to twenty minims, in hard or soft gelatin capsules,—and finds it eminently satisfactory. There is no doubt about the elimination of creosote carbonate by the respiratory tract,—the breath gives ample evidence. Two drachms a day, even on the first day, may cause the urine to become dark-green, and this is regarded as an indication to reduce the dose to one-half of its former size. According to the writer's observations it does not cause malaise or gastro-intestinal disturbance. Since creosote carbonate contains 90 per cent. of creosote, the dose may be considered to be practically identical. Fifteen to twenty drops per day is probably sufficient for children; adults will bear one to two drachms, even four drachms per day in divided doses may not be excessive.

Ergot in the Treatment of Periodic Neuralgias.

William H. Thomson (*Journal of Nervous and Mental Diseases*, February, 1894) recently read a paper on the above subject before the New York Neurological Society, in which he gave the histories of a number of cases of severe periodic neuralgias, in which the symptoms were promptly relieved by the use of ergot in large doses. In all of these cases the disease was of long standing, and the usual remedies had been employed without avail. In migraine he administered ergot as follows: Two drachms of a mixture containing equal parts of the fluid extract of ergot and elixir of cinchona are taken in water as soon as the premonitory symptoms of the headache are noticed, and the patient is advised to lie down and

keep very quiet. If after an hour the headache continues, a second similar dose is taken, and then a third after another hour, if necessary. As nausea is such a general accompaniment of this affection, it is provided that if either of the doses be vomited, it should then be taken in an enema of two ounces of water. This medication, the speaker said, rarely fails to arrest the attack, even in long-standing cases, and with a preventive course of intestinal antisepsis in the intervals, the relief from the malady has often proved permanent.

The Uses of Codeine.

Perininger (*Therapeutische Monatshefte*, October, 1893), with a view to observing to what extent codeine could replace morphine, tested its merits in a number and variety of patients. The usual method of administration was as a powder or in solution. First, as regards its narcotic properties, the author does not agree with others who found it successful in this respect, only short periods of sleep having been produced in his patients. When pain was present it was slightly relieved. In cases of tuberculosis where, owing to insufficient expectoration, troublesome cough coexisted with boring pains in the chest, its action was analogous to that of morphine, producing the same relief. Similar observations were made in patients suffering from bronchitis, but the dyspeptic symptoms sometimes produced by a long use of morphine were not complained of, while some cases of dyspepsia even appeared to be improved by its use. With infants the same precautions are necessary, and in pertussis its use was followed by excellent results. In neuralgic affections of the lower extremities injections of codeine were not so successful as those of morphine, and the author suggests from other observations that there may be a certain antagonism between the two drugs. He concludes by stating that he does not consider codeine to be a substitute for morphine, though in isolated cases it appears to act better. However, the author considers that further experiments should be made with the drug in other directions.

The Hypodermic Use of Cocaine.

Réclus and Gauthier (*Medical Press*, No. 2837, 1893) describe methods of administering cocaine subcutaneously with safety. Réclus states that the dose should never exceed one-fifth of a grain for small operations, and from one to three grains in large operations. The injection should always be made while the patient is in the recumbent posture, and care must be observed to prevent puncture of a vein. With these precautions, he concludes that the drug is free from danger.

Gauthier claims that the addition of nitroglycerin to the cocaine solution offsets all possible danger, and the patient need not remain in the recumbent position. He has employed for the last two years the following solution:

℞	Cocain. hydrochlor.,	gr. iii.
	Spt. glonoin. (1 per cent.),	♏ x.
	Aquæ destil.,	f℥ iiss.

Sixteen minims of this solution contain one-third of a grain of cocaine and one minim of spirits of nitroglycerin. Instead of causing collapse, this combination stimulates the heart, flushes the face, and makes the patient feel quite comfortable.

The Medicinal Treatment of Typhlitis.

Grasset (*Rev. Gén. de Clin. et de Thérap.*, December 6, 1893) summarizes his views on the treatment of this affection. The indications vary according as the attack is acute and inflammatory, or one of recurrent typhlitis between the attacks, or typhlitis with persistent cecal engorgement. In the last variety medicinal treatment is rarely available, and recourse must be had to operative interference. In recent typhlitis with acute exacerbations Grasset gives the following directions:

(1) A warm bath is to be given lasting from half an hour to an hour.

(2) Every hour the patient is to receive a teaspoonful of a mixture consisting of one part each of castor oil and almond oil, and two parts of syrup of lemon, until the bowels move freely.

(3) Inunctions of an ointment of mercury and belladonna are to be made over the right iliac region, and are to be followed by the application of a large, thin, hot flaxseed poultice. In obstinate cases a drop of croton oil may be added to the purgative mixture.

In recurrent typhlitis in the intervals between the attacks he advises,—

(1) A diet which leaves little residue.

(2) The application once a week of the actual cautery to the painful and indurated region, also daily frictions of an ointment of belladonna.

(3) For the relief of constipation, a pill at bedtime, containing one-sixth of a grain each of powdered belladonna, extract of belladonna, and podophyllin.

(4) For the purpose of securing intestinal antisepsis, a powder or capsule, containing seven or eight grains of benzo-naphthol, before and after each meal.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M D.

The Migration of the Ovum to the Tube.

Lode (*Archiv für Gynäkologie*, Bd. xlv, Heft 2) has investigated this interesting subject by a series of experiments upon guinea-pigs. In one experiment he injected fine coal particles into the peritoneal cavity. The animal was killed thirty-six hours afterwards and the coal particles were detected in both tubes. In a guinea-pig four months old, in which the sexual organs were not yet fully developed, the particles were found only in the fimbria. In another series of experiments he used the ova of the *ascaris lumbricoides*, as they were larger than the coal particles. The injections were made in the same way into the peritoneal cavity. The examinations of the guinea-pigs killed within a variable period of between thirty-six hours to seven days showed the presence of the ova in large numbers in about the middle portion of the tubes. In a few instances the ova had become glued together, forming a round mass fully the size of the natural ovum of the guinea-pig. This was found in the same situation in the tubal canal. The author draws the following conclusions from his investigations:

(1) The cilia of the tube of a guinea-pig have the power of setting into motion bodies the size of the ovum of the guinea-pig, providing that the animal has arrived at sexual maturity.

(2) The tube is enabled to take up ova not only from the ovary, but also from the free peritoneal cavity. Hence the old theory may be discarded, that it is necessary for the tube to be applied to the ovary in order to engage the ovum within its canal. The theory of transmigration—that is, the passage of the ovum from one ovary to the tube on the opposite side—receives new proof by the foregoing experiments.

(3) The migration of the ovum is independent of the menstrual period, as none of the animals experimented upon showed any signs of rut, either while alive or at the post-mortem.

(4) The migration is not dependent upon coitus.

(5) The ovum travels along the first part of the tube much more rapidly than along the remaining part of the tube.

Lode attributes but a small rôle in the propulsion of the ovum to the peristaltic movements of the tube.

Apparent Migration of the Ovum in a Case of Double Tubal Pregnancy.

Coe (*Medical Record*, May 27, 1893) reports a peculiar case of tubal pregnancy. At the operation the cavity of the pelvis was closed by adhesions of omentum and bowel. Upon separation of these adhesions, fluid blood and blood-clots were found in Douglas's pouch. Behind the right broad ligament—the tumor had been found to be upon the right side—was a mass as large as an orange, which was united with the side of the uterus, resembling a newly-bursted sack without a pedicle. Sinking his hand into the pelvis, Coe found a fetus, of about the third or fourth month, actively moving its limbs and surrounded with blood-clots. The sack was evidently that of a freshly-bursted extra-uterine pregnancy, which, according to the patient's history, was of twelve years' duration.

The examination of the tumor was made by Williams, of Johns Hopkins's Hospital. It was enclosed in the right broad ligament, and contained the body of a mummified fetus. The new pregnancy had taken place in the same tube, external to the old tumor; rupture had occurred with the escape of the fetus into the peritoneal cavity. The left ovary contained a corpus luteum of pregnancy. The right ovary none.

The right tube was closed at its uterine end, but free at its fimbriated end. Both Coe and Williams came to the conclusion that the impregnated ovum had wandered over from the left side to the right, and had entered through the fimbriated end of the tube and there developed, as the tube at the position of the old tubal pregnancy was closed.

The Treatment of Rupture of the Uterus.

Merz (*Archiv für Gynäkologie*, Bd. xlv, Heft 2) describes two cases of rupture of the uterus which came under his observation, and tabulates all the hitherto published cases, giving an analytical review of them. In fifty-four cases celiotomy was performed with 48.1 per cent. recovery. He arrives at the following conclusions:

(1) If only the trunk and extremities of the fetus have escaped into the ab-

dominal cavity, and the head lies over the pelvis, the woman should be delivered *per vias naturales*, either with forceps or by perforation and craniotractor.

(2) If the head of the fetus or the whole body has escaped into the abdominal cavity version and extraction, as frequently advised, should not be attempted, but celiotomy should be done at once and the fetus delivered through the abdominal incision.

(3) In the latter case the rupture should be carefully sutured.

(4) If the woman has been delivered *per vias naturales*, and the conditions are very favorable, celiotomy and suture of the rupture should follow the birth immediately.

(5) If the conditions are not favorable, then drainage with iodoform gauze without irrigation should be employed.

(6) If the uterus is markedly degenerated, or if septic endometritis has developed, a Porro operation should be done.

Concerning the Treatment of Abortion.

Eckstein (*Prager medicinische Wochenschrift*, Nos. 17 and 18, 1892), as assistant in Martin's clinic, has had opportunity to study sixty cases of abortion treated by Martin's principles in his private clinic in Berlin. He attaches the greatest importance in the curettage of the uterus to the thorough emptying of the tubal angles, as remains of placenta or portions of membranes are especially liable to be attached there. In nearly all the cases Eckstein followed a manual or instrumental emptying of the uterus with curettage, by the idea that an imperfect separation of the decidua and a consequent endometritis is thereby to be prevented. The results of this method were very satisfactory. From his experience he deducts the following:

(1) The instrumental method of the treatment of abortion is the only rational one.

(2) The recognition of the cause of bleeding from the uterus is of the greatest importance, and therefore in every uterine hemorrhage a careful examination should be made.

(3) Ergot and similar drugs should only be used when the uterus is empty.

(4) If abortion is in progress, tamponnade of the vagina is only indicated when there is no dilatation of the os uteri.

(5) When the dilatation of the os is sufficient, the emptying of the uterus, in spontaneous abortion, is indicated.

(6) In large embryos, from the fifth month on, one conducts the abortion as in labor at term.

(7) In abortion attended with fever and the decomposition of the product, the uterus should be emptied of its contents as quickly as possible.

(8) A thorough curettage of the endometrium should follow every emptying of the uterus in abortion.

Fetus with an Eruption of Measles.

Ballantyne (*Edinburgh Medical Journal*, March, 1893) reports the case of a woman who aborted at the fifth month of her pregnancy while suffering from measles. Her eruption was beginning to disappear. The fetus was born alive and was found to have measle eruption upon the face, back, and legs.

GYNECOLOGY.

UNDER THE CHARGE OF

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ASSISTED BY

WILLIAM A. CAREY, M.D., AND H. D. BEYEA, M.D.

PYOMETRA.

G. W. REYNOLDS (*American Journal of Obstetrics*, February, 1894) gives the history of a case of this rare condition. The patient was an Irish woman, aged 53 years, having a family of ten children, the youngest of which was 14 years old. The menopause occurred a year before she sought treatment. Upon examination a median abdominal tumor was found, which occupied the lower portion of the abdomen and extended as high as the umbilicus. On digital examination the lower segment of the tumor was felt, apparently about three inches from the vaginal outlet, and imparted to the fingers the impression of an endometrous fibroid. The os was obliterated, and the cervix could not be made out distinctly. The tumor pressed heavily upon the bladder and the rectum. A sterilized trocar introduced at the seat of the former os withdrew pus. Acting upon this clue, a thermo-cautery was introduced, and over a quart of pus escaped. The cautery was used for the purpose of preventing serious bleeding, and also to prevent the orifice from closing too rapidly. The puncture happened to be made in the line of the uterine cavity, and a sound passed into this canal after puncture showed its length to be ten inches. Thorough irrigation with boric acid solution was followed by the introduction of a drainage-tube, about six inches in length, and the vagina was packed with iodoform gauze. Daily irrigation of the uterus was continued until all discharge ceased. The uterus measured at the end of three weeks two and a half inches. The extreme rarity of this condition renders it liable for mistakes to be made in diagnosis. This case was examined by several men of experience in gynecological work, and was variously diagnosticated as fibroid, fibrocystic tumor of the anterior wall of uterus, and hematometra. The pathological condition probably began about the time of the last confinement, at which time occurred a prolapse of the uterus with laceration of the cervix and ectropion, followed by ulceration, cicatrization, and closure of the cervical canal. The uterus was probably in a condition of suppurative endometritis at the time the atresia developed.

THE ETIOLOGY OF THE DISEASES PECULIAR TO WOMEN.

T. GAILLARD THOMAS (*Medical and Surgical Reporter*, February 24, 1894) says that while morbid conditions may develop in connection with the genital system of the woman at any time of her existence, intervening between "the cradle and the grave," it is beyond question true that there are in her life four great climacteric periods, in connection with which the great bulk of the diseased states to which she is liable develop; in which, at a rough estimate, it is safe to assume that nearly eight-tenths of all of these conditions originate. These climacterics may be thus presented:

(1) Puberty, marked by progressive metamorphosis of the ovaries, and resulting ovulation and menstruation.

(2) Marriage.

(3) Childbearing.

(4) The menopause, marked by retrograde metamorphosis of the ovaries, and resulting cessation of ovulation and menstruation.

Speaking of the conditions which give rise to disease during the second period, the author says there are three morbid states which now show themselves; vaginismus, specific vaginitis, endometritis and salpingitis; the manifold evils which follow the induction of abortion. Accidents occurring during pregnancy, at the onset of labor or during the puerperium, furnish countless numbers of invalid women. Those who escape active or chronic inflammatory disease may be the victims of faulty involution with prolapsus of organs. During the menopause, while many nervous manifestations are present, due to the changes which are taking place in the sexual apparatus, those changes are inducing beneficial effects upon the generative organs by checking subinvolution and uterine hyperplasia, and menstrual irregularities, and making it proper in certain cases, where no positive degenerative changes have occurred, to postpone contemplated operative measures in the hope that by this climacteric they may be avoided.

Uretero-Vaginal Fistula.

Hochstetter (*Archiv für Gynäkologie*, Vol. LV, 1893) gives a *résumé* of the literature and reports a case of uretero-vaginal fistula, treated after the method of Shede. Up to the present time thirty-nine cases of uretero-vaginal fistula have been reported. The causes of the fistula were as follows: twenty-three cases followed difficult labors, mostly instrumental; ten cases, hysterectomy; two in the opening of a pelvic abscess; two in spontaneous rupture of a pelvic abscess; one as the result of the wearing of a wax pessary for a long time; and the cause of the other case was not given. Of the recent cases a fistula most frequently occurred as a result of hysterectomy. In this operation, where the parametrium is not free, a ureter may very easily be partially or entirely included in the ligation of the lateral ligaments and thus an opening on the surface or complete division of the ureter result. Zweifel believes that a simple nicking of a ureter in attempting to ligate the broad ligament and parametrium *en masse* can cause a fistula; and also, where the uterus is carried through the vesico-uterine incision and the broad ligament ligated from above, that the ligature must necessarily come very near the ureter where it crosses the broad ligament, and if too much tissue is included, the ureter is carried backward, and although it be so distant from the uterine wall that it is not cut into or across, it may be simply nicked, and through necrosis a greater or less perforation follow. In confirmation of this, Zweifel has reported a case where death followed because of sepsis three days after operation, and at the post-mortem the left ureter was found to be dilated because of compression, caused by ligation of surrounding tissue, but necrosis had not begun, as sufficient time had not been allowed. The ligation of a ureter is followed by severe symptoms the day succeeding operation, but an absolute diagnosis of ureter ligation cannot be made. Although a catheter be allowed to remain continually in the bladder, and one is absolutely sure all urine is caught, showing a distinct diminution in the urine quantity, it cannot be said that a ureter has been ligated, since the urine is often diminished in quantity after operation, because of the loss of blood, frequent vomiting, and the taking of little fluid. Vomiting, pain, and pressure, sensitiveness over a nephritic area is also not definitely diagnostic. The surer method of diagnosis is by means of the cystoscope, and frequently this is very difficult, since the urine secretion can be so small that only a single drop may exude from a healthy ureter in a minute or longer. Where both ureters are ligated a definite diagnosis can be made through absolute anuria. If such a diagnosis is made the

ligatures may immediately be loosened and fistula prevented, as in a case reported by Gusserow. The ligatures were removed twenty-four hours after operation. The patient died forty-eight hours later of purulent peritonitis, and at the post-mortem no signs of injury to the ureters could be demonstrated. Zweifel also reports a like case, where the ligatures were removed from the left side after forty-eight hours, and from the right side after six days, the patient recovering without fistula. The symptoms of uretero-vaginal fistula are, that only part of the urine is lost through a vaginal fistula (about half), a small opening is found in the vagina from which, in a short time, a drop of urine is seen to exude; an instrument introduced into the fistula does not enter the bladder; and lastly, since the bladder can be filled with a colored fluid (milk) without the same flowing through the fistula, we can positively say it is not a vesico-vaginal fistula. The position of the fistula and the use of a sound usually determine which ureter has been injured.

Treatment.—If the ureter has not been completely cut through, but there is only a slit in its wall, it can spontaneously heal, as observed in cases reported by Zweifel (three), Schatz (one); and Hochstetter reports a case in which the flow of urine ceased thirty-four days after operation. If the fistula continues patent, an operation should be attempted, the object being not only to relieve the highly disagreeable symptoms of continuous involuntary flow of urine, but also to prevent the danger of extension of inflammation to the kidney. Simon first treated these cases by converting a uretero-vaginal fistula into an uretero-vagino-vesical fistula, with the aim of secondarily closing this last fistula. Later, Landan attempted its direct healing by introducing a small catheter from the vagina into the nephritic end of the ureter, and then the free end through the vesical portion of the ureter into the bladder, and from here out through the urethra. He then freshened the tissue on both sides of the catheter and united it over the same. Where the method could not be applied, because of closure of the vesical end of the ureter, he incised the bladder just above the upper edge of the mouth of the ureter and converted a ureter fistula into a vesico-vaginal fistula, suturing the ureter to the bladder. Bandl, Nicolandi, and Sokoff have reported cases operated upon after this method. The most recent, and that giving the best results, is the method of Shede. Shede modifies the previous methods in that he, first of all, makes a vesico-vaginal fistula in immediate relation with the ureter fistula, and at the same time suctures together the vesical and vaginal mucous membranes composing the fistula edges. At a second operation, usually twenty-four days later, he attempts the closure of this fistula by incising a strip of vaginal mucous membrane, 3 millimetres in breadth, immediately around the fistula edge (not the fistula edge itself), and inverting this intact strip of mucous membrane into the bladder, thus forming a condition of ectropion in the bladder, composed of the now united vesical and vaginal mucous membranes, and making a mucous-membrane canal in relation with the mouth of the ureter. The advantages of this operation are as follows:

(1) The making of a lip-formed vesico-vaginal fistula covered with mucous membrane guards against later contraction.

(2) The secondary operation prevents not only a fresh wound of the ureter wall, but also of the bladder mucous membrane, and thus greatly reduces the danger of cicatricial narrowing of the ureter opening.

(3) If it becomes necessary after operation, the prepared canal is a sure guidance to the ureter in treatment with a sound. Shede (one), Kaltenbaugh (two), and Ariel Geyl (one) have operated after this method with very satisfactory results.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

The Fat-Cell.

W. C. Borden, M.D. (*New York Medical Journal*, February 24, 1894), in an interesting paper upon the cells of adipose tissue, comes to the following conclusions:

The fat-cell is of special origin and of glandular nature. It occurs in the lower vertebrates in special organs composed of gland-like cells, developed from special centres, homologous with the special fat-organs of lower vertebrates.

In the lower vertebrates adipose tissue continues as fat-glands, never changing into other tissue, and as distinct in structure and function as other ductless gland-tissue.

Special limits are placed upon the occurrence of adipose tissue in all animals, and its non-appearance in certain regions where connective tissue is always present, is distinctive.

The cells have highly specialized metabolic functions, and these, with their gland-like development and the arrangement of their blood-supply, place them upon an entirely different histological and physiological footing from the supporting functional connective tissues.

Anthrax in Rats.

Müller, Kurt (*Fortschritte der Medicin*, Bd. xi, 1893, Nos. 6–15), after studying the effect of anthrax upon different varieties of rats, and upon variously-treated rats, makes the following interesting observations:

(1) The susceptibility of rats to anthrax is very variable. Certain species possess a remarkable degree of susceptibility, yet among them certain individuals may be observed which have an inexplicable immunity.

(2) Through a carefully-selected diet it is possible to bring about a pronounced resistance in susceptible animals.

(3) The dark-colored rats are more resistant than the white.

(4) The immunity against anthrax does not seem to depend upon the bactericidal power of the blood of all rats (Behring), as this power of the blood does not vary with the varying immunity and susceptibility of the animals (Metschinkoff).

(5) The rat-organism probably possesses bactericidal substances which, it would appear, are let loose by the effect of the metabolism of the anthrax bacilli. This product seems to be in no way connected with the blood-serum, but a product of the body itself.

(6) The leucocytes seem to play an important part in the production of immunity, not in the sense of Metschinkoff as visible morphological antagonists, but rather as chemical-destroying agents.

A Case of Complete Absence of the Lungs.

Schmit, Heinrich (*Virchow's Archiv*, Bd. 134, s. 25), examined an eight-months fetus, 44.3 centimetres in length, having an apparently normal thorax, but an entire absence of lungs, pulmonary arteries, and veins.

The trachea and esophagus formed a cavity whose wall anteriorly, from 18 millimetres below the larynx downward, contained irregular cartilages, and consisted of muscular tissue behind. On the left side the diaphragm extended to the second rib, the space between it and the chest wall being filled with fat. The pericardium, containing a well-developed heart, occupied the right side. There was no pleural cavity on either side. The aorta-system was well developed, the pulmonary artery passing without branches from the right ventricle into the aorta through the ductus Botalli. The only veins which emptied into the right auricle were the two venæ cavæ. The liver, larynx, stomach, and cranium were practically normal.

Acute Yellow Atrophy of the Liver.

McPhedran and Macallum (*British Medical Journal*, February 10, 1894) give an excellent histological study of a case of acute yellow atrophy of the liver. The condition known as red atrophy was so marked that fully nine-tenths of each section showed no trace of hepatic cells at all. The outlines of the original lobules could be made out roughly by the distributions of the biliary ducts, which were very abundant, so much so that in the smaller interlobular canals as many as twelve and more have often been counted. All traces of venulæ centrales have disappeared.

Finding the previous explanations of the origin of the prevalent bile-ducts insufficient, the following theory was advanced:

In the normal condition the ducts of the interlobular canals are lined with epithelial cells of various sizes and shapes, from columnar and cubial to the flat or scale (squamous) form. The scale form is chiefly found in those finer ducts which are on the point of entering the lobules. The cells of all these ducts in acute yellow atrophy increase in size, and this is due to the same condition which is responsible for the large size of the endothelial cells in the adjacent tissues. The increase in the amount of the protoplasm of the cells of the ducts, its finely granular and, to a certain extent, its eosinophilous character, are evidences that these cells are degenerating also, or that the cells are absorbing the remains of degenerated or broken-down cells. It is, of course, inside the margins of the original lobules that one can at times detect the transformation of the flat lining cells into the large cubial cells.

The hepatic parenchyma remained only under the capsule. The first change observed in the liver-cells seems to be a coarse granulation or fatty vacuolation which appears in that part of the cell next to the blood-capillary. With the further change the fat-droplets become larger, the granulation much coarser, and the nucleus loses its structure and becomes more or less homogeneous. In cells which contain no fat, only the membranes of the nucleus may be observed, all else having disappeared. In the enlarged cells, in which fatty degeneration alone is prominent, the fat is collected in large droplets, separated from each other by proto-plasmic septa in which the granules are collected. Examples of cell-division among the nearly normal hepatic cells are sufficiently abundant to warrant the conclusion that just as there is atrophy in one part there is regeneration of the hepatic parenchyma in another. It might be possible thus to explain the reported cases of recovery from attacks of this disease.

Distinct changes are observed in the blood-capillaries whose endothelium is seen to swell and fill the lumen of the vessels. The cells may become so large as to rival the liver-cells. The connective tissue outside the vessels also becomes more coarsely fibrillated and stands out prominently in areas where there is little fatty change.

In the areas where red atrophy is present, the liver-cells are found inflated with fat-droplets, but the tissue is typically made up of fibrillæ running in every direction in a mesh-form, enclosing between them granules, some of them pigmented, and leucocytes, while the spaces in the mesh-work are occupied by endothelial cells of various sizes, irregular shapes, and granular protoplasm. Had one no means of studying the development of these endothelial cells, they might be considered as persistent liver-cells.

The endothelial cells of some of the intralobular veins and venules are also enlarged, granular, and readily stained with eosin. They may lie free in the lumen of the vessel, and they present identically the same appearance as the endothelial cells of the lobular areas, except that the latter are of greater size.

The atrophic condition is in some way connected with lack of blood-supply. The normal parenchyma is found only where the circulation is good.

The authors describe certain bodies, which they call *endocytes*, as occupying the protoplasm of the hepatic and endothelial cells, more often in the latter, and most numerously at the edges of the areas of red atrophy. They are nearly spherical, their protoplasm is eosinophilous, sometimes granular, and sometimes contains a nucleus. These bodies resemble the so-called psorosperms of Darier and Wickham, found in the affected cells of Paget's disease of the nipple. The explanation offered by the authors is that they are enclosed leucocytes, which, having entered the cells, are living at their expense.

Crystals of leucin and tyrosin were not observed. Although careful search was made by various methods, no bacteria could be found.

MISCELLANEOUS.

MUTTER LECTURESHIP OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

THE next course of ten lectures under the bequest of the late Professor Thomas Dent Mutter, M.D., LL.D., "on some point or points connected with Surgical Pathology," will be delivered in the winter of 1896–97 before the College of Physicians of Philadelphia. Compensation, $600. The appointment is open to the profession at large. Applications, stating subjects of proposed lectures, must be made before July 1, 1894, to

WILLIAM HUNT, M.D.,
Chairman of the Committee on the Mutter Museum.
N. E. COR. 13TH AND LOCUST STREETS.

THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS

THE Congress of American Physicians and Surgeons will be held in Washington, D. C., May 29, 30, 31, and June 1, 1894.

The sections, fourteen in number, have announced interesting programmes.

OPENING OF THE NEW WISTAR INSTITUTE OF ANATOMY.

IT has been found necessary to change the date of the opening of the New Wistar Institute of Anatomy to Tuesday, May 22, instead of June 4, as previously announced. Dr. William Osler will deliver the address.

THE JOHN HARRISON LABORATORY.

THE Trustees of the University of Pennsylvania have received a large money contribution from Messrs. Alfred C., William W., and Charles C. Harrison for the new chemical laboratory. In recognition of this, and because the action seems for many reasons to be appropriate, they have named the building the John Harrison Laboratory of Chemistry.

The donors are the grandchildren of Mr. John Harrison, who was a pioneer in industrial chemistry in this country. He was a trustee of the University, and a bosom friend of the great chemist, John Priestley, the discoverer of oxygen. The first professor of chemistry in the University was the gifted Dr. Rush, who, when his other duties became so great that he was forced to resign, united with Mr. Harrison in securing the election of Priestley to the chair.

DEATH OF DR. EDOUARD BROWN-SÉQUARD.

DR. EDOUARD BROWN-SÉQUARD, the eminent physician, died at Paris on April 2, 1894. He was born on the Island of Mauritius, the son of Edward Brown, a native of Philadelphia, who had married a French lady named Séquard, the son taking both names, according to an old custom. He studied medicine in Paris, graduating in 1849. He conducted many experiments in physiology, and the French Academy awarded him a prize five times. Twice he received a portion of the queen's grant for the encouragement of science from the Royal Society of London. From 1860 to 1864 he directed the London Hospital for

Paralytics and Epileptics. He then became Professor of Physiology and Pathology of the Nervous System at the Harvard Medical School. Returning to France he was elected to the chair of medicine in the College of France. The Baly medal was awarded him by the Royal College of Physicians of London in 1881. His most recent contribution to medical science was the supposed discovery of therapeutic properties in testicular juice, which remedy has become widely known as "Elixir of Life." He married twice. His first wife was Miss Fletcher, of Boston, a relative of Daniel Webster.

THE EXAMINATION OF GYNECOLOGICAL SPECIMENS.

In order to extend the usefulness of the Pathological Laboratory of the Gynecological Department of the University of Pennsylvania, the following plan has been adopted:

Any physician may send to the pathological laboratory any specimen for examination on which the diagnosis or the prognosis of a gynecological case may depend. A fee of five dollars will be charged for such examination in case the patient is able to pay. If the physician states that his patient is too poor to pay, the examination will be made free. The necessity for some arrangement of this kind, especially in making an early diagnosis of malignant disease of the uterus, is widely felt.

This offer applies to private, not to hospital, patients. The specimen should be placed in 95 per cent. alcohol, and directed to the Professor of Gynecology, Hospital of the University of Pennsylvania, 3400 Spruce Street, Philadelphia.

A brief history of the case should be sent with each specimen.

A report will be returned to the physician within two weeks after the receipt of the specimen.

BOOK NOTICES.

THE HEALING OF RODENT CANCER BY ELECTRICITY. By J. INGLIS PARSONS, M.D., M.R.C.S., M.R.C.P. (Lond.). London: John Bale & Sons, 1893.

Although this monograph is entitled the Healing of Rodent Cancer by Electricity, the author has included a brief discussion on the pathology and symptoms of the affection. The subject of electro-physics is briefly considered, and the action of the electric current on living tissues explained. As might be supposed, the author expresses a decided preference for electricity in the treatment of rodent ulcer. Four

cases are detailed in which a cure is said to have resulted from the use of electricity. One of these cases is reproduced, and shows an admirable result. It is probable that the disadvantages of excision by the knife are somewhat exaggerated. At the same time, if it is found by further experience that the treatment by electricity is as efficient as indicated, the author will have made a valuable contribution to the medical art.

A Practical Treatise on Materia Medica and Therapeutics. By Roberts Bartholow, M.A., M.D., LL.D. Eighth Edition. Revised and enlarged. New York: D. Appleton & Company, 1893.

Bartholow's Materia Medica and Therapeutics has been so long recognized as an authority—both in this country and abroad—that nothing is required of the reviewer beyond noting the additions and improvements which characterize the present edition. The work has been thoroughly revised, titles and formulas have been made to correspond to the new Pharmacopeia, and a number of new remedies have been added. In accordance with the example of the Pharmacopeia, also, the metric system of weights and measures has been introduced, and, for the benefit of those who are unacquainted with this system, an appendix has been added containing tables of the equivalents of weights and measures. Doubtless this new edition will meet with the same favor which all its predecessors have enjoyed.

A Clinical Text-Book of Medical Diagnosis for Physicians and Students, Based on the Most Recent Methods of Examination. By Oswald Vierordt, M.D., Professor of Medicine at the University of Heidelberg; formerly Private Docent at the University of Leipzig; later, Professor of Medicine and Director of the Medical Polyclinic at the University of Jena. Authorized translation with additions. By Francis H. Stuart, A.M., M.D.; Member of the Medical Society of the County of Kings, New York; Fellow of the New York Academy of Medicine; Member of the British Medical Association, etc. Third Revised Edition. With 178 illustrations, many of which are in colors. Philadelphia: W. B. Saunders, 1894.

When it is stated that a text-book of medicine is so excellent that a second edition is required within a year, and a third only two years later,—such is the history of Vierordt's Medical Diagnosis,—there is but little of comment left to the reviewer of the third revised edition. Some trifling errors have been corrected, and a few slight changes made,—as the substitution of "cracked-pot sound," for "noise of the spun-top," on page 134; but in other respects it is the same satisfactory, well-printed book of former editions. We recommend it highly, and prophesy a fourth edition at an early date.

DIFFERENTIAL DIAGNOSIS OF COMMON DISEASES OF THE EYES. Designed for the use of general physicians. By W. F. CONNERS, M.D., of Oil City, Pa.

Dr. Conners has prepared a chart on the above subject intended to guide the general practitioner in the more common diseases of the eye, such as cataract, glaucoma, iritis, conjunctivitis, keratitis, lachrymal disease, and blepharitis. The symptoms of each are contrasted in tabular form which serves to emphasize the characteristics of each. The treatment is also given, and a warning is noted in the cases that may assume a serious aspect that an oculist should be consulted. The charts may be obtained by addressing the author. The price is fifty cents.

ESSENTIALS OF PRACTICE OF MEDICINE. Prepared especially for students in the form of questions and answers. By HENRY MORRIS, M.D., late Demonstrator of Jefferson Medical College, etc., with an appendix on the examination of urine, by LAWRENCE WOLFF, M.D. Third edition, revised and enlarged by some 300 formulæ from the writings of the most eminent authors, by WILLIAM M. POWELL, M.D. Philadelphia: W. B. Saunders, 1894.

This manual has been a favorite with students since its first appearance in 1890, and in its present revised and improved form it should commend itself more than heretofore to the student of medicine. It can in no sense be considered a substitute for the larger text-books, but may be used in conjunction with them. With some few minor exceptions, it may be said that Dr. Morris has very faithfully performed the task which he set for himself. Dr. Powell is already well known as the author of a work of formulæ, and by other contributions to medical literature, and his portion of the work adds much to the value of the book.

THE YEAR-BOOK OF TREATMENT FOR 1894. A comprehensive and critical Review for practitioners of medicine and surgery, in a series of twenty-four chapters, by eminent specialists. Philadelphia: Lea Brothers & Co., 1894.

This year-book of treatment, in the ten years of its publication, has won for itself such an enviable reputation that more than an announcement of a new edition seems superfluous. The extraordinary activity in modern therapy renders a book of this kind indispensable to the busy practitioner. In the present volume we note the addition of two new articles: "Medical Diseases of Children," by Dr. Dawson Williams, and "Bacteriology in Relation to Treatment," by Dr. William Hunter. The great progress of these two branches of medicine is sufficient reason for the introduction of special reviews. The volume contains also a "selected list of new books, and new additions and translations," which will give the reader a knowledge of the latest and best literature under each head.

HAND-BOOK OF INSANITY FOR PRACTITIONERS AND STUDENTS. By DR. THEODORE KIRCHHOFF. New York: William Wood & Co., 1893.

The author of this excellent manual is physician to the Schleswig Insane Asylum and private docent at the University of Kiel. Throughout there are marked evidences of personal knowledge and original work. The first chapter is devoted to the anatomical basis and location of the mental disturbances. The causes of insanity, both those acting upon the community and those acting on the individual, are fully given. Before coming to the special part, there is an account of the signs and symptoms of insanity. The classification is simple, there being two grand divisions,—first, simple mental disorders; and, second, mental disorders associated with permanent anatomical changes in the brain or with general diseases. The book is neatly gotten up, the type good, and there are several excellent plates showing different types.

OUTLINES OF OBSTETRICS. By CHARLES JEWETT, A.M., M.D., Professor of Obstetrics and Pediatrics in the Long Island College Hospital, and Obstetrician to the Hospital. Edited by HAROLD F. JEWETT, M.D. Philadelphia: W. B. Saunders, 1894.

This work is a syllabus of lectures delivered by Dr. Jewett at the Long Island College Hospital. Although intended for the student, this work will also be found of interest by the practitioner. The subject is accurately but briefly presented, and there is an entire absence of meaningless discussions. The book, of course, is not exhaustive, but, as its title indicates, is an outline work, and takes a very creditable position among its class. The teachings given are entirely modern, and may be followed implicitly.

TO CONTRIBUTORS AND SUBSCRIBERS.

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UNIVERSITY OF PENNSYLVANIA PRESS,
716 Filbert Street, Philadelphia, Pa.

UNIVERSITY
MEDICAL MAGAZINE

JUNE, 1894.

INTRODUCTORY REMARKS AT THE OPENING OF THE WISTAR INSTITUTE OF ANATOMY AND BIOLOGY.[1]

By William Pepper, M.D., LL.D.,

Provost and Professor of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania.

Ladies and Gentlemen,—We have met this afternoon in this formal way for the purpose of declaring open this Institute, wisely planned and generously constructed by General Isaac J. Wistar, as a permanent home for the Wistar Museum and as a centre of investigation and higher teaching in anatomy and biology.

The building itself has been completed for several months, but it was decided to postpone this formal opening until the arrangement of the collection could be shown at the same time. I think that every one present must appreciate the peculiar interest which attaches to this building and to this collection. I know no building on this continent designed for the subjects here represented which is comparable with this in excellence of its plan and in perfection of its details for the purposes of a scientific museum. There is no collection in this country relating to the subjects here represented comparable in historic interest with the collection that is here formally installed to-day.

You will hear from those who follow me as to the labors and the fame of the men who have filled the chair of anatomy in the Medical School of the University of Pennsylvania. I will allude only to him through whose energy and generosity this museum originated. Caspar Wistar was elected, in 1792, Adjunct Professor of Anatomy with Dr. Shippen, whom he succeeded in 1808 as full professor, a position which he held until his death, in 1818. He carried the reputation of the chair to a point where it has been consistently maintained by his illus-

[1] Delivered May 21, 1894.

trious successors. By his rare combination of high scientific and personal qualities he became a great force throughout the entire country in the direction of higher education and of the elevation of his profession. He did much to insure the early prominence of this Medical School, and, dying at the early age of 57 years, left his name and fame as a precious heritage to the University. That name well deserved to live, and surely it will live in many ways. Naught renders a community or a great institution so rich as the wealth of noble names clustering around it and recalling lives of lofty purpose and sustained devotion to high causes.

General Isaac J. Wistar, in deciding to devote a princely sum to the development of the subjects of anatomy and biology, wisely chose this collection, with which his family name is so honorably associated, as a basis around which there should be developed a great institute. Professor Caspar Wistar has no direct lineal descendant. He had a brother, Thomas Wistar, whose son, a physician, called also Caspar Wistar, born in 1801, and deceased in 1867, was the father of Isaac J. Wistar. In no spirit of personal aggrandizement, but in what all will recognize as a most proper desire to perpetuate a name so long honored in this Commonwealth, this foundation has been termed by him, "The Wistar Institute." Nor may I let this occasion pass without a word of tribute to the largeness of purpose, the generous breadth of view, and the fine liberality which have marked General Wistar's conduct in all the negotiations leading to this foundation. The building and the endowment already turned over to its trustees exceed in value $300,000. That this will be greatly increased there is no reason to doubt.

The work which is before this Institute is a great one. It will be described to you by those who follow me, and who can speak of it more authoritatively than I can. But there are lessons, too obvious to be overlooked, which this undertaking may teach every man and woman in this room. It was not started as a duplication of any existing institute, nor was it founded as a separate and distinct endowment. Taking a portion of the University, which needed strengthening and developing, General Wistar has made it serve as the basis of an institute destined to be the centre of the highest work in the sciences represented. While he insisted that the financial integrity of this Institute should be scrupulously preserved, by intrusting the endowment to a separate and distinct corporate trustee, he recognized the enormous strength that comes from concentration and co-operation; and for the government of the Institute, and for the promotion of its scientific work, he arranged for a Board of Directors,[1] to be elected annually by the Board of Trustees of the University of Pennsylvania.

[1] One of these directors is to be a descendant of General Wistar's father, and two others are to be designated by the Academy of Natural Sciences of Philadelphia.

The ground upon which this building rests was formally transferred by the University to the Wistar Institute; the endowment is, as I have stated, in the hands of the Trustee of the Wistar Institute; the collections that are in this building and every collection that may be given to it become the property of the Wistar Institute. Could any one ask for a more definitely distinct individuality than is secured for this foundation? And yet, with wise farsightedness, it has been provided by the manner of election of its directors that, as far as scientific work is concerned, it is organically connected with and is an integral part of the University of Pennsylvania. Thus there has been put into the hands of the University and added to its great force this splendid foundation; and can any one doubt that at once the value of this endowment is doubled, nay, is multiplied indefinitely, by the fact that, instead of starting as a new and distinct institution, it takes its place as a cognate department of a great University already engaged earnestly in scientific work of the highest class. One cannot help wishing that other public benefactors, here and elsewhere, might have grasped the possibility of such co-operation, and have appreciated the added strength which would be acquired by their foundations, while they contributed powerfully to the development of great institutions already existing. What splendid results will follow if, throughout this great Commonwealth, the lesson of this Institute shall be taken to heart so that all interested in higher education and in scientific work shall appreciate that, in an institution as broad as is the University and whose administration is as flexible as is that of the University, there is room for the introduction of every form of affiliation and of co-operation.

No matter how distinct the individuality which is demanded for a new foundation; no matter what special perpetuation of family or individual name; no matter how specific may be the line of work designated for the intended foundation; no matter how complete may be the separation of its financial interests from those of the general University, it may here be seen clearly that all of these may be secured, while at the same time there is established such organic relations with the University as will yield immense reciprocal benefit. It appears to me that this demonstration on the part of a man whose distinct individuality and whose definiteness of purpose were so conspicuous as in the case of General Wistar, points a moral which should be taken deeply to heart by every one. Every man and woman who is interested in the development of our great University, and who has come to feel the force of that strong life which is sweeping through its every part, will rejoice in the establishment of this great Institute, and will wish for it a brilliant career in the field it so honorably occupies. Nor can we overlook the encouraging truth that the broader spirit and larger

life acquired by the University in these recent years have enabled it to draw to it an endowment of this kind, and that, in its scheme of work, there is found ample room for an institute such as this, which shall at once take its place as one of the co-equal departments of the University. It is not many years since the University of Pennsylvania made to other institutions engaged in conducting highly important museum and scientific work overtures of the most disinterested and generous character. These overtures were rejected, with the inevitable result that we see to-day continued multiplication of museums. When will we learn that concentration and co-operation are consistent with the maintenance of absolutely distinct individuality, and that they are the secret and the source of power and of rapid progress? When will needless rivalries cease and be merged in a great common effort to elevate the noble cause for which all of us are honestly working?

I do believe that there is growing, here and elsewhere, a larger conception of higher education and of a university and of what those great terms really mean. I hope it is coming to be believed that, so far from a university being a private corporation, managed by a few men in the interest only of those immediately connected with it, we are reaching a recognition of the truth that the university is the people's institution, the people's college, the people's museum, the people's university; that it should be in affiliation with, and be an aggregation of every institute and of every agency, wherever located and however governed, that exists in the community for the promotion of research and the acquisition and diffusion of knowledge. It seems to me that Isaac J. Wistar has placed before us an object lesson from which truths of the greatest value may be plainly drawn.

I have been tempted to speak to you beyond the limits of my privilege by the deep interest of this occasion and by the earnest faces I see before me. My purpose in rising was but to accept formally the completed building and then to have the great pleasure of introducing to you, in the first place, one who but recently was of the faculty of our Medical School and who, though now connected with a sister institution, we well know retains his love for Pennsylvania, as we still cherish him in our hearts. No one can speak with more authority than he upon the importance of such a foundation as this; and our best wish for those who shall labor here might well be that they should display such high purpose and such fruitful activities in scientific work as have marked the career of our distinguished guest, Professor Osler of Johns Hopkins University.

THE LEAVEN OF SCIENCE.[1]

By William Osler, M.D., F.R.C.P. (Lond.),

Professor of Medicine in the Johns Hopkins University.

Mr. Provost, Ladies, and Gentlemen: In the continual remembrance of a glorious past individuals and nations find their noblest inspiration, and if to-day this inspiration, so valuable for its own sake, so important in its associations, is weakened, is it not because in the strong dominance of the individual, so characteristic of a democracy, we have lost the sense of continuity? As we read in Roman history of the ceremonies commemorative of the departed, and of the scrupulous care with which, even at such private festivals as the Ambarvalia, the dead were invoked and remembered, we appreciate, though feebly, the part which this sense of continuity played in the lives of their successors,—an ennobling, engentling influence, through which the cold routine of the present received a glow of energy from "the touch divine of noble natures gone." In our modern lives no equivalent to this feeling exists, and the sweet and gracious sense of an ever-present immortality, recognized so keenly and so closely in the religion of Numa, has lost all value to us. We are even impatient of those who would recall the past, and who would insist upon the importance of its recognition as a factor in our lives, impatient as we are of everything save the present with its prospects, the future with its possibilities. Year by year the memory of the men who made this institution fades from out the circle of the hills, and the veil of oblivion falls deeper and deeper over their forms, until a portrait, or perhaps a name alone, remains to link the dead with the quick. To be forgotten seems inevitable, but not without a sense of melancholy do we recognize the fact that the daily life of three thousand students and teachers is passed heedless of the fame, careless of the renown of these men; and in the second state sublime it must sadden the circle of the wise, as they cast their eyes below, to look down on festivals in which they play no part, on gatherings in which their names are neither invoked nor blessed. But ours the loss, since to us, distant in humanity, the need is ever present to cherish the memories of the men who in days of trial and hardship laid on broad lines the foundations of the old colonial colleges.

To-day, through the liberality of General Wistar, we dedicate a fitting monument to one of the mighty dead of the University,—Caspar

[1] An address delivered at the opening of the Wistar Institute of Anatomy and Biology of the University of Pennsylvania, May 21, 1894.

Wistar. The tribute of deeds has already been paid, to him in this splendid structure, to all in the stately group of academic buildings which you now see adorning the campus,—the tribute of words remains, to be able to offer which I regard a very special honor.

But as this is an Institute of Anatomy, our tribute to-day may be justly restricted, in its details at least, to a eulogy upon the men who have taught the subject in this University. About the professorship of anatomy cluster memories which give to it precedence of all others, and in the septemviri of the old school the chairs were arranged, with that of anatomy in the centre, with those of physiology, chemistry, and materia medica on the left, while those of practice, surgery, and obstetrics were placed on the right. With the revival of learning anatomy brought life and liberty to the healing art, and throughout the sixteenth, seventeenth, and eighteenth centuries the great names of the profession, with but one or two exceptions, are those of the great anatomists. The University of Pennsylvania has had an extraordinary experience in the occupancy of this important chair. In the century and a quarter which ended with the death of Leidy, six names appear on the faculty roll as professors of this branch. Dorsey, however, only delivered the introductory lecture to the course, and was seized the same evening with his fatal illness; and in the next year Physick was transferred from the chair of surgery, with Horner as his adjunct. In reality, therefore, only four men have taught anatomy in this school since its foundation. Physick's name must ever be associated with the chair of surgery. We do not know the faculty exigencies which led to the transfer, but we can readily surmise that the youthfulness of Horner, who was only twenty-six, and the opportunity of filching for surgery so strong a man as Gibson from the Faculty of the University of Maryland, then a stout rival, must have been among the most weighty considerations.

If in the average length of the period of each incumbency the chair of anatomy in the University is remarkable, much more so is it for the quality of the men who followed each other at such long intervals. It is easy to praise the Athenians among the Athenians, but where is the school in this country which can show such a succession of names in this branch: Shippen, the first teacher of anatomy; Wistar, the author of the first text-book of anatomy; Horner, the first contributor to human anatomy in this country; and Leidy, one of the greatest comparative anatomists of his generation? Of European schools, Edinburgh alone presents a parallel picture, as during the same period only four men have held the chair. The longevity and tenacity of the three Monros have become proverbial; in succession they held the chair of anatomy for 126 years. Shortly before the

foundation of this school Monro *secundus* had succeeded his father, and taught uninterruptedly for fifty years. His son, Monro *tertius*, held the chair for nearly the same length of time, and the remainder of the period has been covered by the occupancy of John Goodsir, and his successor, Sir William Turner, the present incumbent.

To one feature in the history of anatomy in this school I must refer in passing. Shippen was a warm personal friend and house-pupil of John Hunter. Physick not only had the same advantages, but became in addition his house-surgeon at St. George's Hospital. Both had enjoyed the intimate companionship of the most remarkable observer of nature since Aristotle, of a man with wider and more scientific conceptions and sympathies than had ever before been united in a member of our profession, and whose fundamental notions of disease are only now becoming prevalent. Can we doubt that from this source was derived the powerful inspiration which sustained these young men. One of them, on his return from England, at once began the first anatomical classes which were held in the colonies; the other entered upon that career so notable and so honorable, which led to the just title of the Father of American Surgery. It is pleasant to think that direct from John Hunter came the influence which made anatomy so strong in this school, and that zeal in the acquisition of specimens which ultimately led to the splendid collections of the Wistar-Horner Museum.

William Shippen shares with John Morgan the honor of establishing medical instruction in this city. When students in England they had discussed plans, but it was Morgan who seems to have had the ear of the trustees, and who broached a definite scheme in his celebrated "Discourse," delivered in May, 1765. It was not until the autumn of the year that Shippen signified to the board his willingness to accept a professorship of anatomy and surgery. He had enjoyed, as I have mentioned, the friendship of John Hunter, and had studied also with his celebrated brother, William. Associated with him as fellow-pupil was William Hewson, who subsequently became so famous as an anatomist and physiologist, and as the discoverer of the leucocytes of the blood, and whose descendants have been so prominent in the profession of this city. No wonder, then, with such an education, that the younger Shippen, on his return in 1762, in his twenty-sixth year, should have begun a course of lectures in anatomy, the introductory to which was delivered in the State House on November 16. To him belongs the great merit of having made a beginning, and of having brought from the Hunters methods and traditions which long held sway in this school. Wistar in his eulogium pays a warm tribute to his skill as a lecturer and as a demonstrator, and to the faithfulness with which he taught the subject for more than forty years. Apart

from his connection with this institution he served as Director-General of the Military Hospitals from 1777 to 1781, and was the second president of the College of Physicians.

In the history of the profession of this country CASPAR WISTAR holds an unique position. He is its Avicenna, its Mead, its Fothergill, the very embodiment of the physician who, to paraphrase the words of Armstrong, used by Wistar in his Edinburgh Graduation Thesis, "Sought the cheerful haunts of men, and mingled with the bustling crowd." He taught anatomy in this school as adjunct and professor for twenty-six years. From the records of his contemporaries we learn that he was a brilliant teacher, "the idol of his class," as one of his eulogists says. As an anatomist he will be remembered as the author of the first American Text-Book on Anatomy, a work which was exceedingly popular, and ran through several editions. His interest in the subject was not, however, of the 'knife and fork' kind, for he was an early student of mammalian paleontology, in the development of which one of his successors was to be a chief promotor. But Wistar's claim to remembrance rests less upon his writings than upon the impress which remains to this day of his methods of teaching anatomy. Speaking of these, Horner, who was his adjunct and intimate associate, in a letter dated February 1, 1818, says, "In reviewing the several particulars of his course of instruction, it is difficult to say in what part his chief merit consisted; he undertook everything with so much zeal, and such a conscientious desire to benefit those who came to be instructed by him, that he seldom failed of giving the most complete satisfaction. There were, however, some parts of his course peculiar to himself. These were the addition of models on a very large scale to illustrate small parts of the human structure; and the division of the general class into a number of sub-classes, each of which he supplied with a box of bones, in order that they might become thoroughly acquainted with the human skeleton, a subject which is acknowledged by all to be at the very foundation of anatomical knowledge. The idea of the former mode of instruction was acted on for the first time about fifteen years ago." We have no knowledge of a collection of specimens by Shippen, though it is hard to believe that he could have dwelt in John Hunter's house and remained free from the insatiable hunger for specimens which characterized his master. But the establishment of a museum as an important adjunct to the medical school was due to Wistar, whose collections formed the nucleus of the splendid array which you will inspect to-day. The trustees, in accepting the gift on the death of Dr. Wistar, agreed that it should be styled the Wistar Museum, and now, after the lapse of seventy-six years, the collection has found an appropriate home in an Institute of Anatomy which bears his honored name.

But Wistar has established a wider claim to remembrance. Genial and hospitable, he reigned supreme in society by virtue of exceptional qualities of heart and head, and became, in the language of Charles Caldwell, "the *sensorium commune* of a large circle of friends." About no other name in our ranks cluster such memories of good fellowship and good cheer, and it stands to-day in this city a synonyme for *esprit* and social intercourse. Year by year his face, printed on the invitations to the "Wistar Parties" (still an important function of winter life in Philadelphia) perpetuates the message of his life, "Go seek the cheerful haunts of men."

How different was the young prosector and adjunct who next taught the subject! HORNER was naturally reserved and diffident, and throughout his life those obstinate questionings which in doubt and suffering have so often wrung the heart of man were ever present. Fightings within and fears without harassed his gentle and sensitive soul, on which mortality weighed heavily, and to which the last four things were more real than the materials in which he worked. He has left us a *journal intime*, in which he found, as did Amiel, of whom he was a sort of medical prototype, "a safe shelter wherein his questionings of fate and the future, the voice of grief, of self-examination and confession, the soul's cry for inward peace, might make themselves freely heard." Listen to him: "I have risen early in the morning, ere yet the watchman had cried the last hour of his vigil, and in undisturbed solitude giving my whole heart and understanding to my Maker, prayed fervently that I might be enlightened on this momentous subject, that I might be freed from the errors of an excited imagination, from the allurements of personal friendship, from the prejudices of education, and that I might, under the influence of Divine grace, be permitted to settle this question in its true merits." How familiar is the cry, the great and exceeding bitter cry of the strong soul in the toils and doubtful of the victory! Horner, however, was one of those on whom both blessings rested. Facing the spectres of the mind, he laid them, and reached the desired haven. In spite of feeble bodily health and fits of depression, he carried on his anatomical studies with zeal, and as an original worker and author brought much reputation to the University. Particularly did he enrich the museum with many valuable preparations, and his name will ever be associated with that of Wistar in the anatomical collection which bears their names.

But what shall I say of LEIDY? the man in whom the leaven of science wrought with labor and travail for so many years. The written record survives, and such a record! scarcely equalled in variety and extent by any naturalist, but how meagre is the picture of the man as known to his friends. The traits which made his life of such value—

the patient spirit, the kindly disposition, the sustained zeal—we shall not see again incarnate. The memory of them alone remains. As the echoes of the eulogies upon his life have scarcely died away, I need not recount to this audience his ways and work, but upon one aspect of his character I may dwell for a moment, as illustrating an influence of science which has attracted much attention and aroused discussion. So far as the facts of sense were concerned, there was not a trace of Pyrrhonism in his composition, but in all that relates to the ultra-rational no more consistent disciple of the great sceptic ever lived. There was in him, too, that delightful ἀταραξία, that imperturbability which is the distinguishing feature of the Pyrrhonist, in the truest sense of the word. A striking parallel exists between Leidy and Darwin in this respect, and it is an interesting fact that the two men of this century who have lived in closest intercourse with nature should have found full satisfaction in their studies and in their domestic affections. In the autobiographical section of the life of Charles Darwin, edited by his son Francis, in which are laid bare with such charming frankness the inner thoughts of the great naturalist, we find that he, too, had reached in supra-sensuous affairs that state of mental imperturbability in which, to borrow the quaint expression of Sir Thomas Browne, they stretched not his *pia mater*. But while acknowledging that in science scepticism is advisable, Darwin says that he was not himself very sceptical. Of these two men, alike in this point, and with minds distinctly of the Aristotelian type, Darwin yet retained amid an overwhelming accumulation of facts—and here was his great superiority—an extraordinary power of generalizing principles from them. Deficient as was this quality in Leidy, it was not associated in him with "the curious and lamentable loss of the higher æsthetic taste" which Darwin mourns, and which may have been due in part to protracted ill health, and to an absolute necessity of devoting all his capabilities to collecting facts in support of his great theory.

When I think of Leidy's simple life, of his devotion to the study of nature, of the closeness of his communion with her for so many years, there recur to my mind time and again the lines,—

> "He is made one with nature; there is heard
> His voice in all her music, from moan
> Of thunder to the song of night's sweet bird;
> He is a presence to be felt and known
> In darkness and in light, from herb and stone,
> Spreading itself where'er that Power may move
> Which has withdrawn his being to its own."

Turning from the men to the subject in which they worked, from the past to the present, let us take a hasty glance at some of the devel-

opments of human anatomy and biology. Truth has been well called the daughter of Time, and even in anatomy, which is a science in a state of fact, the point of view changes with successive generations. The following story, told by Sir Robert Christian, of Barclay, one of the leading anatomists of the early part of this century, illustrates the old attitude of mind still met with among "bread and butter" teachers of the subject. Barclay spoke to his class as follows: "Gentlemen, while carrying on your work in the dissecting-room, beware of making anatomical discoveries; and above all beware of rushing with them into print. Our precursors have left us little to discover. You may, perhaps, fall in with a supernumerary muscle or tendon, a slight deviation or extra branchlet of an artery, or, perhaps, a minute stray twig of a nerve,—that will be all. But beware! Publish the fact, and ten chances to one you will have it shown that you have been forestalled long ago. Anatomy may be likened to a harvest-field. First come the reapers, who, entering upon untrodden ground, cut down great store of corn from all sides of them. These are the early anatomists of modern Europe, such as Vesalius, Fallopius, Malpighi, and Harvey. Then come the gleaners, who gather up ears enough from the bare ridges to make a few loaves of bread. Such were the anatomists of last century,—Valsalva, Cotunnius, Haller, Winslow, Vicq d'Azyr, Camper, Hunter, and the two Monros. Last of all come the geese, who still contrive to pick up a few grains scattered here and there among the stubble, and waddle home in the evening, poor things, cackling with joy because of their success. Gentlemen, we are the geese." Yes, geese they were, gleaning amid the stubble of a restricted field, when the broad acres of biology were open before them. Those were the days when anatomy meant a knowledge of the human frame alone; and yet the way had been opened to the larger view by the work of John Hunter, whose comprehensive mind grasped as proper subjects of study for the anatomist all the manifestations of life in order and disorder.

The determination of structure with a view to the discovery of function has been the foundation of progress. The meaning may not always have been for "him who runs to read;" often, indeed, it has been at the time far from clear; and yet a knowledge in full detail of the form and relations must precede a correct physiology. The extraordinary development of all the physical sciences, and the corresponding refinement of means of research, have contributed most largely to the enlightenment of the 'geese' of Barclay's witticism. Take the progress in any one department which has a practical aspect, such as, in the anatomy and physiology of the nervous system. Read, for example, in the third edition of Wistar's "Anatomy," edited by Hor-

ner in 1825, the description of the convolutions of the brain, on which to-day a whole army of special students are at work, medical, surgical, and anthropological, and the functions of which are the objective point of physiological and psychological research,—the whole subject is thus disposed of: "The surface of the brain resembles that of the mass of the small intestine, or of a convoluted, cylindrical tube; it is, therefore, said to be convoluted. The fissures between these convolutions do not extend very deep into the substance of the brain." The knowledge of function correlated with this meagre picture of structure is best expressed, perhaps, in Shakespearian diction, "that when the brains were out, the man would die." The laborious, careful establishment of structure by the first two generations in this century led to those brilliant discoveries in the functions of the nervous system which have not only revolutionized medicine, but have given to psychologists almost enough of metaphysics to enable them to dispense with metaphysics altogether. It is particularly interesting to note the widespread dependence of many departments on accurate anatomical knowledge. The new cerebral anatomy, particularly the study of the surface of the brain, so summarily dismissed in a few lines by Wistar, made plain the path for Hitzig and Fritsch, the careful dissection of cases of disease of the brain prepared the way for Hughlings Jackson; and gradually a new phrenology on a scientific basis has replaced the crude notions of Gall and Spurzheim; so that with the present generation, little by little, there has been established, on a solid structure of anatomy, the localization of many of the functions of the brain. Excite with a rough touch, from within or from without, a small region of that mysterious surface, and my lips may move, but not in the articulate expression of thought, and I may see, but I cannot read the page before me; touch here and sight is gone, and there again and hearing fails. One by one the centres may be touched which preside over the muscles, and they may, singly or together, lose their power. All these functions may go without the loss of consciousness. Touch with the slow finger of Time the nutrition of that thin layer, and backward by slow degrees creep the intellectual faculties, back to childish simplicity, back to infantile silliness, back to the oblivion of the womb.

To this new cerebral physiology, which has thus gradually developed with increasing knowledge of structure, the study of cases of disease has contributed enormously, and to-day the diagnosis of affections of the nervous system has reached an astonishing degree of accuracy. The interdependence and sequence of knowledge in various branches of science is nowhere better shown than in this very subject. The facts obtained by precise anatomical investigation, from experiments on animals in the laboratory, from the study of nature's experi-

ments upon us in disease, slowly and painfully acquired by many minds in many lands, have brought order out of the chaos of fifty years ago. In a practical age this vast change has wrought a corresponding alteration in our ideas of what may or may not be done in the condition of perverted health which we call disease, and we not only know better what to do, but also what to leave undone. The localization of centres in the surface of the brain has rendered it possible to make, with a considerable degree of certainty, the diagnosis of focal disease, and Macewen and Horsley have supplemented the new cerebral physiology and pathology by a new cerebro-spinal surgery, the achievements of which are scarcely credible.

But this is not all; in addition to the determination of the centres of sight, hearing, speech, and motor activities, we are gradually reaching a knowledge of the physical basis of mental phenomena. The correlation of intelligence and brain weight, of mental endowment and increased convolution of the brain surface was recognized even by the *gleaners* of Barclay's story; but within the past twenty-five years the minute anatomy of the organ has been subjected to extensive study by methods of ever-increasing delicacy, which have laid bare its complex mechanism. The pyramidal cells of the cerebral gray matter constitute the anatomical basis of thought, and with the development, association, and complex connection of these psychical cells, as they have been termed, the psychical functions are correlated. How far these mechanical conceptions have been carried, may be gathered from the recent Croonian Lecture before the Royal Society, in which Ramón y Cajal based the action and the degree, and the development of intelligence upon the complexity of the cell mechanism and its associations. Even the physical basis of moody madness has not evaded demonstration. Researches upon the finer structure of the cerebral cortex lead to the conclusion that imbecility, mental derangement, and the various forms of insanity are but symptoms of diseased conditions of the pyramidal cells, and not separate affections of an indefinable entity, the mind. Still further; there is a school of anthropologists which strives to associate moral derangement with physical abnormalities, particularly of the brain, and urges a belief in a criminal psychosis, in which "men are villains by necessity, fools by heavenly compulsion, knaves, thieves, and treachers by spherical predominance." This remarkable revolution in our knowledge of brain functions has resulted directly from the careful and accurate study by Barclay's "geese," of the anatomy of the nervous system. Truly the gleaning of the grapes of Ephraim has been better than the vintage of Abi-Ezer.

The study of structure, however, as the basis of vital phenomena, the strict province of anatomy, forms but a small part of the wide

subject of biology, which deals with the multiform manifestations of life, and seeks to know the laws governing the growth, development, and actions of living things. John Hunter, the master of Shippen and Physick, was the first great biologist of the moderns, not alone because of his extraordinary powers of observation and the comprehensive sweep of his intellect, but chiefly because he first looked at life as a whole, and studied all of its manifestations, in order and disorder, in health and in disease. He first, in the words of Buckle, "determined to contemplate nature as a vast and united whole, exhibiting, indeed, at different times, different appearances, but preserving amidst every change, a principle of uniform and uninterrupted order, admitting of no division, undergoing no disturbance, and presenting no real irregularity, albeit to the common eye irregularities abound on every side." We of the medical profession may take no little pride in the thought that there have never been wanting men in our ranks who have trodden in the footsteps of this great man ; not only such giants as Owen, Huxley, and Leidy, but in a more humble way many of the most diligent students of biology have been physicians. From John Hunter to Charles Darwin enormous progress was made in every department of zoology and botany, and not only in the accumulation of facts relating to structure, but in the knowledge of function, so that the conception of the phenomena of living matter was progressively widened. Then with the "Origin of Species" came the awakening, and the theory of evolution has not only changed the entire aspect of biology, but has revolutionized every department of human thought.

Even the theory itself has come within the law ; and to those of us whose biology is ten years old, the new conceptions are, perhaps, a little bewildering. The recent literature shows, however, a remarkable fertility and strength. Around the nature of cell-organization the battle wages most fiercely, and here again the knowledge of structure is sought eagerly as the basis of explanation of the vital phenomena. So radical have been the changes in this direction that a new and complicated terminology has sprung up, and the simple, undifferentiated bit of protoplasm has now its cytosome, cytolymph, caryosome, chromosome, with their somacules and biophores. These accurate studies in the vital units have led to material modifications in the theory of descent. Weismann's views, particularly on the immortality of the unicellular organisms, and of the reproductive cells of the higher forms, and on the transmission or non-transmission of acquired characters, have been based directly upon studies of cell-structure and cell-fission.

In no way has biological science so widened the thoughts of men as in its application to social problems. That throughout the ages, in the gradual evolution of life, one unceasing purpose runs ;

that progress comes through unceasing competition, through unceasing selection and rejection; in a word, that evolution is the one great law controlling all living things, "the one divine event to which the whole creation moves," this conception has been the great gift of biology to the nineteenth century. In his recent work, Kidd thus states the problem in clear terms: "Nothing tends to exhibit more strikingly the extent to which the study of our social phenomena must in future be based on the biological sciences than the fact that the technical controversy now being waged by biologists as to the transmission or non-transmission to offspring of qualities acquired during the lifetime of the parent, is one which, if decided in the latter sense, must produce the most revolutionary effect throughout the whole domain of social and political philosophy. If the old view is correct, and the effects of use and education *are* transmitted by inheritance, then the Utopian dreams of philosophy in the past are undoubtedly possible of realization. If we tend to inherit in our persons the result of the education and mental and moral culture of past generations, then we may venture to anticipate a future society which will not deteriorate, but which may continue to make progress, even though the struggle for existence be suspended, the population regulated exactly to the means of subsistence, and the antagonism between the individual and the social organism extinguished. But if the views of the Weismann party are in the main correct; if there can be no progress except by the accumulation of congenital variations above the average to the conclusion of others below; if, without the constant stress of selection which this involves, the tendency of every higher form of life *is actually retrograde;* then is the whole human race caught in the toils of that struggle and rivalry of life which has been in progress from the beginning. Then must the rivalry of existence continue, humanized as to conditions it may be, but immutable and inevitable to the end. Then also must all the phenomena of human life, individual, political, social, and religious, be considered as aspects of this cosmic process, capable of being studied and understood by science only in their relations thereto."

Biology touches the problems of life at every point, and may claim, as no other science, completeness of view and a comprehensiveness which pertains to it alone. To all whose daily work lies in her manifestations the value of a deep insight into her relations cannot be overestimated. The study of biology trains the mind in accurate methods of observation and correct methods of reasoning, and gives to a man clearer points of view, and an attitude of mind more serviceable in the working-day-world than that given by other sciences, or even by the humanities. Year by year it is to be hoped that young men will obtain in this Institute a fundamental knowledge of the laws of life.

To the physician particularly a scientific discipline is an incalculable gift, which leavens his whole life, giving exactness to habits of thought and tempering the mind with that judicious faculty of distrust which can alone, amid the uncertainties of practice, make him wise unto salvation. For perdition inevitably awaits the mind of the practitioner who has never had the full inoculation with the leaven, who has never grasped clearly the relations of science to his art, and who knows nothing, and perhaps cares less, for the limitations of either.

And, Mr. Provost, I may be permitted on higher grounds to congratulate the University of Pennsylvania on the acquisition of this Institute. There is great need in the colleges of this country of men who are thinkers as well as workers,—men with ideas, men who have drunk deep of the Astral wine, and whose energies are not sapped in the treadmill of the class-room. In these laboratories will be given opportunities for this higher sort of university work. The conditions about us are changing rapidly, and in the older states utility is no longer regarded as the test of fitness, and the value of the intellectual life has risen enormously in every department. Germany must be our model in this respect. She is great because she has a large group of men pursuing pure science with unflagging industry, with self-denying zeal, and with high ideals. No secondary motives sway their minds, no cry reaches them in the recesses of their laboratories, "of what practical utility is your work?" but unhampered by social or theological prejudices they have been enabled to cherish "the truth which has never been deceived,—that complete truth which carries with it the antidote against the bane and danger which follow in the train of half-knowledge." (Helmholtz.)

The leaven of science gives to men habits of mental accuracy, modes of thought which enlarge the mental vision, and strengthens—to use an expression of Epicharmus—"the sinews of the understanding." But is there nothing further? Has science, the last gift of the gods, no message of hope for the race as a whole; can it do no more than impart to the individual ἀταραξια, imperturbability amid the storms of life, judgment in times of perplexity? Where are the bright promises of the days when "the kindly earth should slumber rapt in universal law"? Are these, then, futile hopes, vain imaginings of the dreamers, who from Plato to Comte have sought for law, for order, for the *civitas Dei* in the *regnum hominis?*

Science has done much, and will do more, to alleviate the unhappy condition in which so many millions of our fellow-creatures live, and in no way more than in mitigating some of the horrors of disease; but we are too apt to forget that apart from and beyond her domain lie those irresistible forces which alone sway the hearts of men. With

reason science never parts company, but with feeling, emotion, passion, what has she to do? They are not of her; they owe her no allegiance. She may study, analyze, and define, she can never control them, and by no possibility can their ways be justified to her. The great philosopher who took such a deep interest in the foundation of this University chained the lightnings, but who has chained the wayward spirit of man. Strange compound, now wrapt in the ecstasy of the beatific vision, now wallowing in the sloughs of iniquity; no leaven, earthly or divine, has worked any permanent change in him. Listen to the words of a student of the heart of man, a depictor of his emotions: "In all ages the reason of the world has been at the mercy of brute force. The reign of law has never had more than a passing reality, and never can have more than that so long as man is human. The individual intellect, and the aggregate intelligence of nations and races, have alike perished in the struggle of mankind, to revive again, indeed, but as surely to be again put to the edge of the sword. Look where you will throughout the length and breadth of all that was the world, 5000 or 500 years ago; everywhere passion has swept thought before it, and belief, reason. Passion rules the world, and rules alone. And passion is neither of the head nor of the hand, but of the heart. Love, hate, ambition, anger, avarice, either make a slave of intelligence to serve their impulses, or break down its impotent opposition with the unanswerable argument of brute force, and tear it to pieces with iron hands." (Marion Crawford.)

Who runs may read the scroll which reason has placed as a warning over the human menageries: "chained, not tamed." And yet who can doubt that the leaven of science, working in the individual, leavens in some slight degree the whole social fabric. Reason is at least free, or nearly so; the shackles of dogma have been removed, and faith herself, freed from a morganatic alliance, finds in the release great gain.

One of the many fertile fancies of the "laughing philosopher," a happy anticipation again of an idea peculiarly modern, was that of the influence upon us for weal or woe of Externals, of the idols, images, and effluences which encompass us,—of Externals upon which so much of our happiness, yes, so much of our every character depends. The trend of scientific thought in this, as in the atomic theory, has reverted to the Sage of Abdera; and if environment really means so much, how all-important a feature in education must be the nature of these encompassing effluences. This magnificent structure, so admirably adapted to the prosecution of that science from which modern thought has drawn its most fruitful inspirations, gives completeness to the already exhilarating *milieu* of this University. Here, at last, Mr.

Provost, and largely owing to your indomitable energy, are gathered all the externals which make up a *Schola major* worthy of this great Commonwealth. What, after all, is education but a subtle, slowly-affected change, due to the action upon us of the Externals; of the written record of the great minds of all ages, of the beautiful and harmonious surroundings of nature and of art, and of the lives, good or ill, of our fellows,—these alone educate us, these alone mould the developing minds. Within the bounds of this campus these influences will lead successive generations of youth from matriculation in the college to graduation in the special school, the complex, varied influences of Art, of Science, and of Charity; of Art, the highest development of which can only come with that sustaining love for ideals which, burns bright or dim as each are mirrors of the fire for which all thirst, of Science, the cold logic of which keeps the mind independent and free from the toils of self-deception and half-knowledge; of Charity, in which we of the medical profession, to walk worthily, must live and move and have our being.

THE OBJECTS OF THE WISTAR INSTITUTE.[1]

By Harrison Allen, M.D.

What are you going to do at the Wistar Institute? I have been asked this question many times. Perhaps I cannot do better with the time allotted to me this afternoon than to attempt to answer it.

The Wistar Institute, in the first place, will take charge of the Wistar and Horner Museum. In the second place, it will afford an opportunity to advanced students in anatomy to pursue researches. In the third place, and, in part as a result of the plan just named, it will permit of extensions to be made along the lines suggested by the present state of the biological sciences. These lines are in a sense revolutionary, and, if successfully pursued, will end in the University possessing one of the finest museums of anatomy that the world has yet seen.

[1] An address delivered at the opening of the Wistar Institute, May 21, 1894. Since this address will appear in its present form as a separate communication from that of the Provost, Prof. Wm. Pepper, as well as from that of Prof. Wm. Osler, who delivered the main address, it is incumbent upon the author to state that as Director it became his duty to represent the Board of Management, at the same time to give expression to opinions for which he alone is responsible. He believes, however, that the spirit actuating him is also that which is entertained by the Board of Management. For additional expression of opinion of the author, the reader is referred to an essay read before the Biological Section of the American Association for the Advancement of Science, 1880; to an address delivered before the Association of American Anatomists at Washington, on the Teaching of Anatomy to Advanced Medical Students, Medical News, December 26, 1891, as well as to an admirable essay by Prof. John A. Ryder, referred to on p. 591.

Now, what are the opportunities afforded by an institute such as this? First, we have unusually fine opportunities of studying the anatomy of race. And why is this so important? Permit me to quote a few lines from a recent address of Dr. J. Wellington Byers[1] on the causes of the pneumonia in the negro: "The bacteriology and pathology of pneumonia have been very clearly made out, though what constitute the special conditions that determine susceptibility have not been ascertained. In a general way we may speculate that there must be some anatomical defect leading to corresponding physiological incompetence of the cells and tissues engaged as the factors of vital resistance to the pathogenic agencies of this disease in the negro. Whether this be an absence of defect of leucocytosis, as has been shown to be the case in fatal instances of pneumonia, remains to be investigated and shown. My chief purpose has been to awaken some interest in the much-neglected department of ethnological medicine, if I may so use the term. A gross comparison of the physiological characteristics of the white, yellow, and black races suggests a higher and lower form of organization, though variations in skin, hair, size, and shape of skull and face do not afford an explanation of these diversities of disease, and we must pass beyond them to still finer and more subtle peculiarities of tissue and cells as the ultimate causes of difference in vital resistance or exemption from disease. Investigation may discover and interpret the nature of these." Is not this a sufficient answer why the anatomy of race may prove of interest to medical men?

Secondly, we have an opportunity equally good with the foregoing of studying the anatomy of the animals which are related to man. The psalmist tells us that the animals are placed under man's dominion. That dominion ordinarily implies a right to use animals for food, clothing, and service. But since man exercises dominion over the animals, has he not on that account also a responsibility? Are not the animals in a sense given him in trust, "to show, O Lord our Lord, how excellent is thy name in the earth"? At least upon the anatomist rests the responsibility of explaining the structure of the animal kingdom, and through a knowledge of this structure how human ills can be alleviated.

It is incumbent on the student to collect data on the structure of all our indigenous animals. Some of the larger, and to the systematist some of the most valuable, animals are threatened with extinction. Can it be doubted that this institute is an appropriate place to ascertain all that is possible to know of the organization of these members of our fauna? Surely it is not enough to collect skeletons and skins, we should prepare the viscera, describe the muscles, the brain, and the nerves. Among the forms which I now have in mind which should

[1] International Medical Magazine, Vol. III, 189, 1894.

receive attention are the bison, the various species of deer, the prong-horn antelope, the Rocky Mountain sheep, the Rocky Mountain goat, the sea-otter, the manatee, the eared seals, and the musk-ox.

Even among animals of a less rare sort than the foregoing excellent work can be done. Forms which are infrequent in one section are common in another. A student could not do better than monograph some one type which is abundant in the locality in which he resides. In this connection our series in the anatomy of allied animals will be of service.

The cultivation of the science of anatomy is inseparably connected with that of medicine. Since every medical student must embrace anatomy in the curriculum demanded by college authorities, it is easy to see how the dormant faculties for anatomical investigation might be awakened. At rare intervals men appear who have these faculties fully expanded from early youth. The Socratic demon imperatively calls them to careers in which the inherent talent finds exercise. A second and larger group acknowledges a strong inclination to anatomical research, yet are content to unite it with a profession. The one last named naturally inclines to make medical application of anatomical knowledge. The one first named is indifferent of such application. Owing to the increase of wealth in the community a larger opportunity is now offered than has been heretofore the case for men to be independent of the support derived from the practice of medicine. Students relying upon the offices of the national service, the incumbency of endowed positions in learned institutions, or upon adequate private means, are, as a rule, but little in touch with medical anatomists.

I am of the opinion that it is not wise to separate in a plan of institute organization the last phase of expansion of any branch of science from its first phase. I believe that those workers who from inclination continue to study anatomy in relation to its ancient mistress, medicine, are pursuing a line of work identical in kind with those who treat anatomy in its relations with a scheme of evolution of organic forms. The intellectual attitude of a student in the museum of a medical college where he concentrates his energies on specimens of morbid anatomy—on physiological anatomy,—on the anatomy of race—is the same as the student in a museum of natural history who deals for the most part with normal individuals selected from the entire animal kingdom. The Wistar Institute, it is hoped, will be a centre of cultivation of medical anatomy, if one may so name it.

Let me give an example of what may be meant as the import of an anatomical investigation taking a medical trend. As late as 1877, Ercolani, in speaking of his researches on the human placenta, states

that he was indebted to Ingrassius and Fabricius for a proper method of study, and criticises Kölliker, who, in 1876, had accepted (in Ercolani's opinion) a wrong one. Few will be inclined to doubt that Kölliker represents the most advanced position in embryological and histological work. Yet Ercolani insists that Kölliker forgets the important precept left us from the old Italian anatomical school, which was the same inculcated by Ingrassius for pathology, that it is of great service in clearing up intricate and difficult questions of human anatomy and pathology to consult comparative anatomy and pathology. Kölliker did not seek to fulfil the serious and important duty of explaining the physiological unity or office of the placenta. Ercolani attributes his own success to the university in which he was educated in medical knowledge, and claims that a direct gain to zoology has been the result of his researches.

I cannot forget that Linneus and John Hunter were physicians; that at one time Johannes Müller practised medicine, and was at all times an anatomist, a zoologist, and a physiologist.[1] I cannot cease to give some value to the fact that at this moment twenty societies are in existence in Europe which exhibit in their titles the union of interests of naturalists and physicians. Nor will I assume that in this day of extraordinary development of the organic sciences careers of distinguished usefulness are not open to those who are inclined to unite natural science with medical work. Robert Tomes, a London dentist, is a leading student in the comparative anatomy of the teeth. W. F. Miller, an American dentist, practising in Berlin, has discovered the bacterial origin of dental caries. The late Franklin H. Hooper, of Boston, a laryngologist, made important contributions to the physiology of the larynx.

But a few years ago a distinguished German anatomist contended that zoology and comparative anatomy were distinct sciences, and refused to give facilities to a student of zoology who wished through the professor's aid to increase his anatomical knowledge. It is strange that such an opinion should have been held by one in Berlin at a time when Johannes Müller's example of keeping both medical anatomy and zoology in close relation to each other (and developing upon the pedestal thus formed the twin superstructure of modern morphology and physiology) should have been lost. Surely it is no longer entertained in Germany, nor should we in America renew the attempt at partition of a subject essentially one and indivisible. Indeed, I would recommend every student to become familiar with the study of at least one closely

[1] Are we no longer to have such titles as that selected by Eschricht for his classical memoir on the Cetacea? It reads as follows: Zoologisch-Anatomisch-Physiologische Untersuchungen über die Nordischen Wallthiere.

related group of species, even if he ultimately intends to confine himself to the phenomena and conditions of general biology or of any of its subdivisions.

It is well within bounds of prudence to state that all peculiarities of an organism are related to each other. The integers in the sum of these peculiarities are held together by a bond. What this bond is to be called is undetermined. It often appears to be a bond of utility; often a bond which is defined by the operations of a crudely-defined law of inheritance. To study the nature of this bond demands search over a wide field. The etiology of many diseases is based on congenital malformations, and exacts on the part of the student knowledge of the deductions drawn from general embryology. To understand the localization of diseased action he must be in possession of the physiological anatomy of the regions invaded. It cannot be a coincidence that the localities at which cancer develops in the human esophagus are those at which the greatest amount of impact occurs between the food and the walls of the esophagus. It cannot be an accidental circumstance that while generic characters in the cetacea are derived from the pterygoid bones that this region in a specimen of Hyperoödon should also be selected for the site of hyperostosis. In the attempt at elucidation of such phenomena the general biologist, the zoologist, the human anatomist, the comparative anatomist, the embryologist, and the pathologist meet on common ground.

I hope I have stated enough to show the manner in which a museum of anatomy may exist, and along what lines it can grow. I look upon a museum as a book made up of many chapters, each specimen being an illustration. What would be thought of the writer of a book whose illustrations are subordinated to a text which is not something better than a mere description of specimens! Do not we find that the books we most esteem are those that tell us of truths, the illustrations simply making clear the meaning of the author? I hope the Museum of the Wistar Institute will be spared the affliction of displaying any specimen whatever which is not in exact illustration of an idea. Of course, the ideas must be those in which professional men are interested, or at least are those in which they may be induced to take an interest.

Let me state in a general way what some of these may be. Since life is a function, so the periods of life are defined by functions. The prenatal and postnatal changes are separated by broadly-defined functions. The postnatal changes are again divided by the times of eruptions of teeth, the times of activities of the visceral organs, etc. To many of these periods we have correlations of structural changes, and I am of the impression that these correlations will be more exact if they are

more carefully searched for. The functions of the embryo are closely associated in our minds with the presence of a ductus arteriosus and a foramen ovale as well as with an open umbilicus and those of the infant with an absence of all these structures. Now, if this is an exact correlation, why should we not ask for similar correlations with the later periods? It is odd that here curiosity often ends and no series express the stage when the thymus gland disappears as a time when other important functions interchange. Nor do we find ourselves to be curious about the adenoid mass in the pharynx which assumes such an important phase in modern medicine. Even the times of eruption of the teeth are looked upon more as isolated dates instead of times of import to many divisions of functional labor in the economy. It is true that the impress of the several phases of nutrition in senility is recognized, yet we lack exact knowledge of the changes of the body in the period of old age. If with propositions such as are here rudely outlined the observer walks through museums of anatomy and asks himself in what manner are the divisions of human life checked off in the specimens therein displayed, or, to put the proposition conversely, to ask in what way these structures are arranged so as to teach the observer what have been the functions of the body which has controlled and enforced them, he will find little or nothing in the way of answers. He will not see so much as a single classification of specimens on a philosophical plan. He will not see as much as a series of skeletons of all the periods of life. It is likely the museum may not possess examples of adenoid growths, of the stages of the thymus gland, or of any specimens in illustration of the influence exerted by sex on nutrition. The absence of such series tells plainly enough the truth that professional zeal takes other directions than in expressions of functions through the forms of structure, the display of which gives opportunity to the anatomist.[1] Not that a museum erected on the plan of physiological anatomy combined with pathology is new. John Hunter outlined it a century ago.

Hunter's influence in medicine has been profound. It brought the standard of professional attainment to a higher level than it had secured before he labored. A beautiful custom exists in England of delivering addresses under the name of Hunterian orations which serve to keep the memory of John Hunter always green. Under the constant guardianship of this noble sentiment it would be supposed that the method of Hunter himself would be closely followed. On the contrary, while his countrymen acknowledge that the achievements of

[1] For an elaborate philosophical plan of a synthetic Museum of Comparative Anatomy as a basis for a comprehensive system of research, the reader is referred to an essay by Prof. John A. Ryder in Zoology. Contributions from Biological Laboratory, University of Pennsylvania, 1893.

the man John Hunter are as yet models for practice, the methods of the philosopher John Hunter are in a measure as unregarded as they were in his own time. One would suppose that following the guidance of a man whom every one praises that each medical centre would have its museum of physiological anatomy, and its laboratories where experiments in nutrition would be fostered. I believe the time will come when this will be the case.

I object to the statement often made that studies in physiological anatomy interfere with success in practical life,—on the contrary, the work itself is urged along by the labors of many specialists. The clinician, the pure physiologist, the physicist all help the anatomist. Their studies are among those which prepare the anatomist for his work. The splendid results in studying the etiology of myxedema by clinical methods enables the anatomist to make a better classification, than was before the case, of all the so-called blood-vessel-gland series. The application of photography to animal movements has given us for the first time a proper method for analysis of the body and limb muscles. The effects of sex impressions on general nutrition would never have been surmised if experimentation upon the domestic animals had not prepared us for them. The gross effects on the entire system of the removal of the sexual organs in the growing animals cannot be separated from minor effects which probably relate to retarded or transient phases of malnutrition in these organs. How can the best results be secured in working along lines established by these suggestions? In no way in my humble opinion other than by institutions especially endowed, in no way but by the sympathy and support of the medical profession, and by encouraging the younger men to pursue studies of the kind to which the management of this Institute is committed.

We can assure these novitiates in anatomical work that they will have a better time than their forerunners. The anatomist is not now compelled to work in rooms unheated in winter; or in attics so high as to be above the limit at which water supply is practicable; or in cellars so damp and dark as to be unwholesome; or in open sheds in summer where he is plagued by myriads of flies. He no longer has his plans ridiculed by attempting lines of work so far out of the common as to be removed from ordinary sympathy and fellowship.

Gen. Isaac J. Wistar has given the profession a noble institution fully equipped, adequately endowed. But with it comes a keen sense of responsibility. Endowment is not of necessity a benefit. The power of wealth expressed in the creation of a fantastic institution would be productive of harm. But a wise endowment is not only of use, but is an essential condition to scientific progress. Now the

wisdom of a public act relates always to the state of the community for whose benefit it is designed. If the community is not in a condition to accept the terms of the gift in spirit as well as in letter the endowment becomes at best an encumbrance. Indeed, in no relation of society can sympathy be prudently omitted. While the multitude need not perceive the intention of a far-sighted founder, it is absolutely necessary to the success of his plans that thoughtful people should not only perceive it, but lend their aid. In military parlance a line of work, no matter how fortified, cannot exist projected in air but must be a part of a mutually sustaining system. So this institute cannot be held, without endangering its existence, as something out of the scheme of University organization. We, therefore, appeal for sympathy, and we believe that the appeal will not be made in vain.

A FATAL CASE OF MENINGITIS AND BRAIN ABSCESS OF OTITIC ORIGIN.[1]

By B. Alexander Randall, M.A., M.D.,

Clinical Professor of Diseases of the Ear, University of Pennsylvania; Professor of Otology, Philadelphia Polyclinic, etc.

Bannet Slutzky, aged 19, a Russian Jew, of healthy family, was admitted to the University Hospital on September 11 suffering with severe headaches and nausea, and vomiting after eating. He had suffered with ear-disease a year or more before, of which no details were obtained, and showed the scar behind the right ear of some loss of substance of the mastoid. No other illness was acknowledged. For two weeks previously he had pain and discharge of the left ear, which he regarded as the renewal of his former trouble, ignoring any lesion on the right, which may, therefore, have been of an earlier period. He claimed to have been recently treated for his ear-trouble at the Out-patient Department of the Pennsylvania Hospital, but his name does not appear on the records of the Ear Dispensary there.

Urination had been scanty, and, by catheter, three ounces were removed, which contained no casts nor albumin. There was pus filling his left ear, and some pain on pressure at the tragus, but no mastoid tenderness nor edema. Next day he complained of abdominal pain,

[1] Read before the Section of Otology and Laryngology of the College of Physicians of Philadelphia on February 6, 1894.

the bowels were constipated, and the urine had to be drawn by catheter. Examination of the ear on the following day by Dr. Brown showed loss of the drum-membrane on the left, with polypoid granulations filling the tympanum. There was some discharge from the right ear, also. The patient was much brighter, but complained of pain in the ear, rather increased by the cleansing by probe and hot syringing twice daily. Hot poultices, renewed for half an hour every three hours, were used over the mastoid, and the ear protected with a warm pad in the intervals, with much relief. On the 15th he complained of stiffness and pain in the back of the neck and headache, principally at the vertex. He vomited several times, irrespective of food-taking, but was able to pass urine, which had previously been drawn by catheter. The eyes were kept closed, as the light annoyed him; the pulse was slow and tense. The back of the neck was blistered and calomel given in small doses every hour. In the evening there was decided pain and stiffness of the neck muscles, contraction of the pupils, with semi-consciousness, broken only to complain of the severity of the headache. Nine leeches were applied to the nape of the neck, the ice-cap continued, and a little opium given with his calomel, although the constipation was still obstinate. On the 16th, the condition was about the same, but the urine was voided involuntarily, and the bowels were moved after three enemas. Bromide, grains xx, was given in the evening with hyoscine, grain $\frac{1}{120}$, hypodermically in place of the morphine. On the 17th the condition had slightly improved, the temperature and pulse were lower, the vomiting less, but the pain still severe and photophobia intense. In the afternoon the extremities were cold, without general chill, and the temperature 101$\frac{1}{5}$° F., rising before midnight to 101$\frac{4}{5}$° F. The great pain and restlessness were relieved by morphine, and he slept quietly for several hours. On the 18th there was no vomiting, but the pain in head and neck was bitterly complained of, in spite of repetitions of the leeching. At 3 P.M. I removed the polyp masses from the tympanum under ether, excised the carious malleus, and cleansed and explored the roof of the attic, without finding any sequestrum or communication with the intracranial cavity. The incus was not found, but in the search for it and cleansing of the tympanum the stapes was removed, apparently bare and exfoliating. The head of the malleus was found to be denuded, and the adjacent walls seemed carious. On the following day there was less fever, and the stiffness of the neck was less marked; but pain was still evident on movement, and the reflexes were lost in the right leg. The urine was passed involuntarily, and at midnight ptosis of the right eye developed, while the temperature ran up to 102$\frac{1}{5}$° F. Delirium with "Cheyne-Stokes" respiration followed on

the 20th, and the condition seemed so desperate that another exploration was decided upon. There was still no slightest evidence of mastoid empyema; but the relatively slow, full pulse made cerebral abscess quite probable as a complication of the meningitis undoubtedly present; and in the absence of localizing symptoms, it seemed well to explore the mastoid carefully for any fistulous track which might indicate the site of an intracranial pus-collection, the evacuation of which might improve the patient's waning chance of life.

Accordingly, with the counsel of Dr. Ashhurst, the mastoid was exposed under ether and its healthy surface was entered with the hand-gouge at the usual point of election, close behind the spine at the upper back margin of the auditory canal. Healthy, firm bone was encountered, nearly devoid of pneumatic cells until the antrum was reached, where a little purulent moisture was met and considerable denudation of the walls. No opening or area of softening could be found in its firm walls, so all idea of intracranial penetration was abandoned, and the wound was closed by sutures, except at the centre, where a gauze drain was placed extending to the antrum. The operation was done without any jarring by employment of a mallet, or incautious use of the gouge, and it was hoped that it would serve a useful purpose by depletion, and later as an issue for the relief of the meningeal inflammation. The temperature fell to 99° F., and a profuse sweat followed the etherization; but his mental condition did not improve, and his pulse and respiration remained above normal. On the following day he lay in a stupor most of the time, unconscious of light or sounds, although occasionally rousing and talking unintelligently. Sensation seemed impaired in the left leg and lost in the left arm, and deglutition was very difficult. At noon there was a slight convulsion, coma grew deeper, the respiration was more impeded by accumulation of mucus, and he died at 6 P.M., the temperature shooting up to 105° F.

The autopsy was made by Professor Guitéras and Dr. Shamberg sixteen hours after death. It showed the body of a well-nourished man, showing some post-mortem lividity and well-marked *rigor mortis*. Over the left mastoid region there was a semilunar incision about five centimetres long, at the bottom of which there was a circular opening into the temporal bone. Behind the right ear there was an old scar and depression indicative of loss of bone-substance. The cancellated structure of the calvaria was considerably congested. The dura mater, except for some abnormal adhesions along the coronal suture, was normal over the hemispheres. The longitudinal sinus presented a few thin coagula. On removing the brain a considerable quantity of pus was found on the declivity and extending laterally over the lower

surfaces of the cerebellum. The dura mater of the base and the sinuses presented nothing abnormal. The osseous prominences of the superior semicircular canals were very marked. In the brain the pia mater covering the medulla and pons and adjoining portions of the cerebellum were infiltrated with pus. On the left side there was a small abscess-cavity lying between the medulla, pons, and cerebellum, encroaching most upon the medulla. A smaller abscess occupied the same position on the right, while a third, much larger, was found above the medulla, its sides formed by the adjacent middle edges of the inferior cerebellar lobes. These were all rather pial than strictly

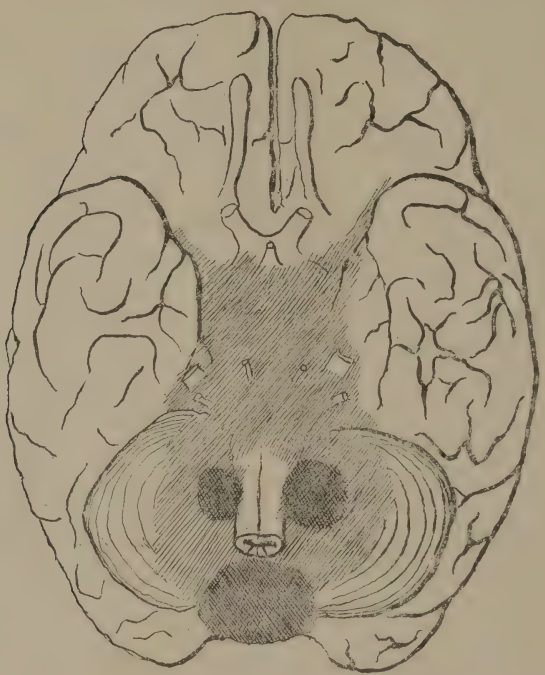


Diagram of cerebral base, showing the location of the abscesses. The shaded area indicates the exudation; the cross-hatching the abscesses.

cerebral, but infiltrated and indented the involved portions. The fourth ventricle was full of pus, and the meningeal wall considerably thickened. The purulent infiltration of the pia extended forward so far as to involve the optic chiasm. The inflammatory process did not involve the cerebrum proper, but there was some deposit of exudation along both Sylvian fissures, more marked on the right side, without thrombosis of any of the larger cerebral vessels. The pia mater over the convexity was much congested, but otherwise normal. The fluid

in the lateral ventricles was turbid, the cavities distended, and the walls quite soft; the fluid in the right ventricle being puriform. The internal suppurative focus was evidently along the choroid plexus, the border of the velum posteriorly being quite thickened and infiltrated with pus. The external wall of the ventricle and the entrances into the middle and posterior horns showed evidences of hemorrhages and purulent infiltration. The gray matter throughout both hemispheres revealed marked congestion, the fornix was very much softened, and the surfaces of the basal ganglia in the lateral and third ventricles presented some minute hemorrhagic points. The third ventricle contained a small amount of turbid fluid, as did also the somewhat distended fourth ventricle. The substance of the basal ganglia showed nothing abnormal, except some congestion of the gray matter. The cerebellum was normal in its substance, except in the vicinity of the abscesses, where the sulci were filled with pus, which somewhat infiltrated the walls. Section of the medulla showed that there was no actual loss of its substance at the sites of the abscesses described, which were formed in the thickened meninges and only pressed in upon it, but there was slight loss of the cerebellar tissue at these points.

The body cavities were not examined, as permission had been granted only for opening the head.

Both temporal bones were removed for more exhaustive study. The left bone showed no slightest lesion of the dura nor of the underlying bone when exposed by stripping off its covering. The failure to detect any communication between the tympanum and the intracranial lesions was, therefore, not due to any defect in the exploration. The surfaces of the tympanum and the wound-track were found in the same condition as they were left after the operation, and there was no evidence that the trephining had complicated the case or hastened the fatal result, unless by shock. The right bone showed thorough healing of the bone of the mastoid, which presented a depression hardly as marked as is often found on the convexity of the normal bone. Search in the left tympanum brought to light a small quadrate remnant of the carious incus, which had escaped detection and removal at either of the operations.

The case illustrates the difficulties which surround the diagnosis in the presence of intracranial disease of otitic origin. The discrepancy between certain of the symptoms, especially the pulse and temperature, gave a working chance for the search for an intracranial collection of pus, such as the autopsy demonstrated to be present; but the absence of localizing symptoms left the intracranial exploration too blind a search to be justifiable in the face of the existent meningitis. The abscesses proved multiple, inoperable, and, combined with meningitic exudations,

precluding a favorable issue; so it was well that their evacuation was not attempted.

The writer would express his thanks to Dr. Guitèras for the use of his post-mortem notes of the case, and to Dr. Jopson, resident physician in the University Hospital, for transcribing these and the clinical notes which he had recorded in the case.

A CONTRIBUTION TO THE PATHOLOGY OF FRIEDREICH'S ATAXIA.[1]

By Charles W. Burr, M.D.

The specimens I present are from Sadie T., who was exhibited in life by Dr. J. P. Crozer Griffith at the meeting of the Philadelphia College of Physicians in February, 1888. I quote the history in brief.[2]

The family history is negative, except that one brother suffers from the same disease. The patient was well until the tenth year, when she began to be nervous. Her hands shook while eating, and her gait was somewhat staggering. Following typhoid fever the nervousness increased, and she was unable to walk without crutches. At this time the arms were but little affected. There were subjective sensations of heat in the feet and aching in the legs, but no fulgerant pains. There were no apparent objective sensory changes in the legs. She applied for treatment at the Infirmary for Nervous Diseases when sixteen years old, and the following notes were made: "Sensation perfect. No tendon reflex. She can make all movements of arms and legs, but is utterly unable to stand. Choreiform movements occur in the hands." She entered the Home for Incurables, December 20, 1880. There was then marked incoördination and affection of speech.

Present Condition.—August 16, 1887. Intelligence good; cannot sit erect; right dorsal scoliosis; slight talipes equino-valgus; no more atrophy than would follow from disuse; patellar reflex abolished; power in arms good. In grasping an object the fingers and hand are extended over it like a claw; no motion or tremor of the hands when in repose, but on voluntary effort slow ataxic movements of the fingers develop, somewhat resembling athetosis; marked incoördination on picking up a pin; she cannot cut her food, but can feed herself; she can scarcely touch the tip of her nose with the fingers, whether the

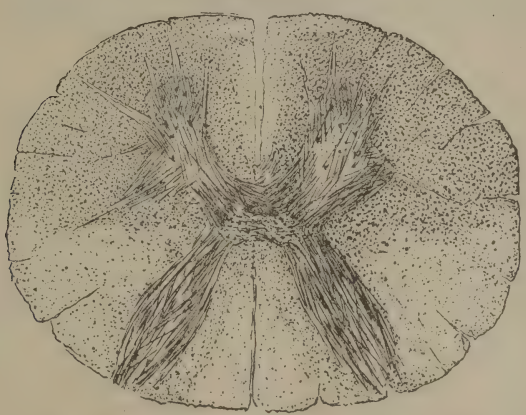
[1] The substance of a communication to the meeting of March, 1894, of the Philadelphia Pathological Society, March 8, 1894.

[2] Transactions of the College of Physicians of Philadelphia, February 1, 1888.

eyes are open or shut; the handwriting is almost illegible; there are at times irregular, lateral, oscillatory movements of the head; speech is peculiar,—jerking, but not scanning; pupillary reflexes are normal; very slight and inconstant nystagmus on extreme lateral movement of the eyes; fundus, examined by Dr. Charles S. Turnbull, normal; urine alkaline, albuminous, and contains numerous leucocytes; there is probably slight retardation of sensation.

Such was the patient's condition at the time of Dr. Griffith's report. Several years later she came under my care at the Home. All symptoms had increased in severity, and general paralytic weakness had

FIG. 1.



Friedreich's ataxia. Upper cervical region. Sclerosis of the posterior columns, the crossed pyramidal tracts, the direct cerebellar tracts, and the direct pyramidal tracts.

been added to the ataxia. She developed phthisis and glycosuria, and retardation of sensation became very marked. There was never anesthesia to deep pressure, but a light touch on the hands and feet was often not felt. She died September 2, 1892. The post-mortem revealed tuberculosis of the right apex, and a tuberculous abscess of the right kidney. Otherwise the abdominal and thoracic viscera were normal. Skull normal. Meninges of the brain and cord normal. The cerebrum, cerebellum, pons, and medulla were slightly smaller than normal, not sufficiently so to be called atrophic, but simply a little below the average. The circumstances of the autopsy prevented weighing. The spinal cord was very small in both the antero-posterior and lateral diameters, especially in the cervical and lumbar swellings. Its length was normal. Consistency harder than usual.

The brain and cord were hardened in Müller's fluid, and sections stained with carminate of soda, aniline blue-black, and by Weigert's

method. Microscopic examination of the cerebrum, cerebellum, pons, and medulla revealed nothing abnormal.

Upper Cervical Region.—(Fig. 1.) Goll's columns are completely sclerosed, except a small area directly in contact with the posterior commissure in which are found quite a number of healthy fibres. There is marked, but not complete, sclerosis of Burdach's columns, there being many healthy nerve fibres scattered here and there along the internal edge of the posterior commissure and horn. The lateral pyramidal tracts are almost entirely, and the direct cerebellar markedly, sclerosed. The direct pyramidal tracts are entirely sclerosed, the condition extending a little way round the periphery.

Cervical Swelling.—(Fig. 2.) Complete sclerosis of Goll's col-

FIG. 2.

Friedreich's ataxia. Cervical swelling. Sclerosis of the posterior columns, direct and crossed pyramidal tracts, and direct cerebellar tract.

umns, and almost complete of Burdach's, there being, however, a thin strip of almost normal tissue along the edge of the posterior commissure and horns. Sclerosis of the direct and crossed pyramidal and direct cerebellar tracts.

Upper Dorsal Region.—(Fig. 3.) The same as above, except that the area of sclerosis along the edge of the anterior longitudinal fissure is less in extent.

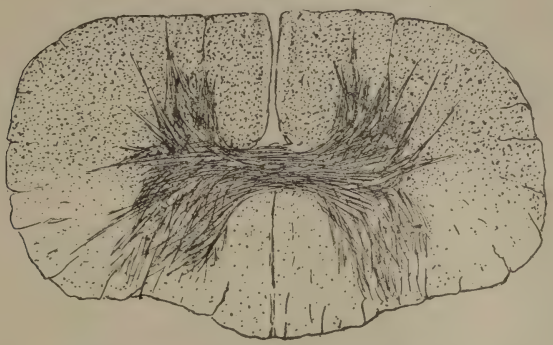
Lower Dorsal Region.—Posterior columns as above. Sclerosis of the crossed pyramidal tracts. No sclerosis along the borders of the anterior longitudinal fissure.

Lumbar Swelling.—(Fig. 4.) Complete sclerosis of the posterior columns. Sclerosis of the lateral columns extending outwardly to the periphery, and inwardly to the external edge of the posterior horns.

Lower Lumbar Region.—Slight sclerosis of the posterior columns.

The lesion of the lateral columns is not strictly confined throughout the cord to definite tracts, but varies in extent at different levels, and is diffuse rather than systematic. There is not the clean-cut boundary between healthy and diseased tissue which we find, for instance, in the descending degeneration following a cerebral lesion. The

FIG. 3.



Friedreich's ataxia. Upper dorsal region. Sclerosis of posterior columns, and direct and crossed pyramidal tracts.

lesion in the direct pyramidal tract is clean-cut and definitely bounded. Throughout the entire length of the cord there is more or less degeneration of the posterior nerve-roots, none of the anterior roots. The cells of the anterior horns are with few exceptions normal, here and

FIG. 4.

Friedreich's ataxia. Sclerosis of the posterior columns and crossed pyramidal tracts.

there we find one shrunken and without processes. The posterior horns are in many places not clearly distinguishable from the neighboring white matter, and the cells are degenerated. The cells of Clarke's

column are markedly degenerated. The central canal is for the most part blocked by deeply-staining nuclear masses.

On microscopical examination of the affected tissue we find the connective tissue septa from the pia indistinguishable in the areas of greatest disease. There is no increase in the number of blood-vessels, and but little, if any, thickening of the walls of those present. In some, however, the walls are apparently hyaline. The sclerosis is made up of a very fine fibrous material, with some proliferation of nuclei. It stains intensely with carminate of soda and aniline blue-black. All attempts to differentiate the connective tissue from the neuroglia by Malassez's method failed miserably. I am unwilling to say that this may not have been due to my lack of skill in the technique of the method.

Two views are held as to the seat of the gross primary lesion of this affection. The first, and this is the more prevalent opinion, is that it is a disease of the spinal cord. The second, that it is cerebellar in origin, was first promulgated many years ago by Hammond, and has been defended very recently by Senator.[1] It is based rather upon the known physiological connection between the cerebellum and certain forms of ataxia rather than upon anatomical changes, since Menzel's is the only case in which cerebellar disease has been found, and in it there was only a diminution in the number of the cells of Purkinje without alteration of those existing. According to this view the spinal changes are secondary. The uniformity with which changes have been found in definite regions of the cord in all cases makes it, I believe, perfectly safe to regard that organ as the primary seat of the affection. As to what the nature of the lesion is, however, and as to whether the involvement of the lateral columns is a necessary factor there is much room for dispute.

The disease is not congenital in the sense of appearing at birth, since the most frequent age at onset is in the period between the sixth and the tenth year. The cord, therefore, is well adapted to the needs of infancy and sufficiently well developed to overcome the physiological ataxia of that period, and hence there is no ground for the belief that there is an actual anatomical arrest of development. On the other hand, acute disease is not needed to produce cordal breakdown, since, while in a few cases acute and usually infectious diseases have precipitated the symptoms, in most instances the condition has developed of itself and without dependence on disease of other organs. Again, inheritance, either direct or indirect, while a very frequent factor, is not necessary, since some undoubted cases have been sporadic. Indeed, as

[1] Berliner klinische Wochenschrift, 1893, No. 21, p. 489.

to this whole matter, we must admit the view accepted by Gowers that the ultimate cause is a congenital tendency of development by which the affected elements have a briefer period of vital endurance than the other tissues of the organism.

There is much uniformity in certain respects in the autopsies made in cases of this disease. In all cases the cord has been small in volume, and the posterior columns, especially those of Goll, have been diseased. In almost all, the lateral columns have been affected sometimes diffusely and sometimes in the crossed pyramidal and direct cerebellar tracts almost exclusively. As a rule, the direct pyramidal tracts have been involved. Inflammation of the central canal has been marked in some cases, occasionally with the presence of distinct but small cavities. The gray matter of the anterior horns has never been found seriously affected, but the cells of Clarke's columns are often shrunken and without processes. Degeneration of the posterior horns has been noticed. The cutaneous nerves have been examined but seldom. In Auscher's case great numbers of apparently embryonic fibres were found, but no degeneration. The anterior nerve-roots have never been found diseased, the posterior practically always.

These conditions have been interpreted very differently. Friedreich's first opinion, founded upon three autopsies, was that the essential lesion is a chronic inflammation of the posterior columns of the cord, beginning in the lumbar region and due to the meningitis present. His final conclusion, based on a fourth autopsy, was that there is a lack of development of the cord in which posterior sclerosis develops, followed by meningitis, which in its turn produces sclerosis of other tracts.

Everett Smith[1] also holds that the lesion is spread by means of the meningitis.

Kahler and Pick[2] hold that there is not simply a posterior sclerosis, but a combined systematic degeneration, an upward degeneration of the posterior columns, downward of the direct and crossed pyramidal tracts, and of the direct cerebellar tracts and columns of Clarke. The clinical history of this case was scanty, and when the patient came under observation motor weakness was so great that the presence or absence of ataxia could not be determined.

In Brousse's[3] case there was marked inflammation of the central canal, which was filled with small deeply-stained cells. He holds that the primary lesion, posterior sclerosis, is spread diffusely by means of the central inflammation to other parts of the cord.

[1] Boston Medical and Surgical Journal, October 15, 1885.
[2] Archiv für Psychiatrie, etc., Bd. VIII, p. 251.
[3] De l'Ataxie Héréditaire, Paris, 1882.

Pitt[1] believes that there is an inherited tendency to vascular degeneration, and that since the posterior columns are the most vascular they suffer first and most. There is not so much an overgrowth of neuroglia as an imperfect development of the medullary sheaths followed by degeneration. The primary cause is probably an endarteritis.

Rutimeyer[2] regards it as a combined system disease.

Blocq and Marinesco[3] hold it to be a developmental disease due to a sclerosis, vascular in origin, and occupying definite regions of the cord.

Dejerine and Letullé[4] advance an entirely new idea in the pathology of the disease. Re-examining a case previously reported by Letullé and Vaquez,[5] and using the method first employed by Malassez to differentiate neuroglia from mesoblastic connective tissue, they found that the lesion of the posterior columns was a pure neurogliar sclerosis, while that of the pyramidal and cerebellar tracts was a vascular or connective tissue sclerosis. They hold that the former is a type found in no acquired sclerotic disease, for example, tabes dorsalis and multiple sclerosis, and hence affirm that Friedreich's ataxia is a gliosis of the posterior columns, a sclerosis of ectodermic origin. The affection of the lateral tracts they regard as secondary.

Auscher[6] also reports a case which he describes as a pure neurogliar sclerosis. It is the more interesting since there was no degeneration except in the posterior columns. The patient died four years after the onset. Incoördination appearing at 25 years was the first symptom. Presently fulgerant pains, scoliosis, trouble of speech, choreiform movements of the head and body, nystagmus, abolition of the reflexes, and Argyle Robertson pupil appeared. Sensation remained normal. The fulgerant pains and pupillary symptoms take the case out of the common type.

We are hindered very much in the endeavor to find the essential lesion by the fact that opportunity for examination comes only after the disease has lasted several, usually many, years. No theory as yet developed explains the whole question satisfactorily. I believe, however, that the view that a neurogliar sclerosis of the posterior columns is the primary lesion approaches most nearly to the truth.

I am greatly indebted to my friend, Dr. A. A. Stevens, for his kindness in drawing the accompanying illustrations.

[1] Guy's Hospital Reports, Vol. XLIV, p. 369.
[2] Virchow's Archiv, Bd. CX, p. 215.
[3] Archives de Neurologie, May, 1891.
[4] Archiv. de Neurologie, May, 1891.
[5] La Semaine Medicale, March 12, 1890.
[6] La Semaine Medicale, July 30, 1890.

MEMORANDA.

NOTE ON A CASE OF CHOREA TREATED BY QUININE.

M. A., 12 years of age, came under my care December 25, 1893, suffering from chorea major. The movements were so violent that she could scarcely be kept on a bed, and her special senses and speech were so interfered with that she was thought to be losing her mind.

When I first saw her she had been under full doses of Fowler's solution, and was very edematous about the face.

Treatment was as follows: Patient put to bed. Diet regulated so as to give a preponderance to albuminous food. Bowels regulated. Spinal ice-bag applied for a half hour night and morning. Quinine, 4 gr., after each meal and at bed time, and assafetida, 2 gr., every two or three hours. Improvement began at once, and at the end of a week the symptoms had greatly abated. The immediate effect of the remedy was very apparent. The patient left the institution in the latter part of February, having had no chorea for some weeks.

BRADFORD C. LOVELAND, M.D.

CLIFTON SPRINGS, N. Y.

At a recent clinic in the University Hospital, Professor H. C. Wood showed two cases of chorea which had been under treatment in the hospital for about one month.

Emma ——, aged about 12 years, negress, entered the hospital in a condition of most violent chorea, which almost deprived her of the power of swallowing food, and prevented sleep except for an hour or two under powerful anodynes. Before admission, trial had been made of the arsenical treatment, pushed to the limit of toleration, without benefit. On February 28 she was put on the use of 20 grains of quinine a day. The result, so far as the choreic movements were concerned, was very pronounced within twenty-four hours. On March 9 the daily dose of quinine was increased to 30 grains. She was then able to sleep quietly all night without being disturbed. March 12, the dose was increased to 35 grains. March 19, it was decreased to 30 grains, but subsequently increased to 35, and later to 40 grains a day. She took in all in one month 1000 grains of quinine. At no time was there ringing in the ears, deafness, or any evidences whatever of cinchonism. The chorea had at the end of the month almost entirely disappeared.

Mary ——, aged 11 years, white, entered the hospital early in March, with a chorea not quite as violent as that of the colored child. She was put upon the use of 15 grains of quinine a day. Cinchonism

and deafness were rapidly induced, and became almost intolerable, when the dose was increased to 20 grains, although there was no pronounced benefit to the chorea. The quinine treatment was then abandoned, and the patient put upon the ordinary arsenical treatment with amelioration.

In remarking upon these cases, Dr. Wood stated that in his experience individual cases of chorea react very differently with different therapeutic applications. Usually the arsenical treatment brings about the desired result, but in some cases it fails, and these cases often yield to cimicifuga, although in a majority of the cases that remedy has distinctly less power over the disorder than has arsenic. There is, therefore, nothing remarkable, so far as the clinical aspect of the cases is concerned, that quinine should be so successful in the first case and such a failure in the second. The two cases, Dr. Wood said, typified the results which he had obtained in a number of instances from the use of quinine,—namely, brilliant success in one case, pronounced failure in another. He further said that there does not seem to be any way in which it can be determined before trial whether a case will or will not prove refractory to quinine; but it was a most curious fact, which has been very frequently noticed in the University clinic, that when quinine is going to do good in chorea, enormous doses of it are tolerated. The toleration of the remedy by Emma —— was almost complete. It seemed almost impossible to produce in her cinchonism by quinine. At no time in her case was there fever, regularity of recurrence of symptoms, or any other indication of the existence of malaria.—Eds.

POTASSIUM PERMANGANATE IN MORPHIA POISONING.

Extract from *Scientific American* of February 3, 1894. "Doctor Wm. Moor, New York City, experimented upon himself, before twelve other physicians, by swallowing three grains of morphine, followed immediately by the drinking of four grains of potassium permanganate dissolved in four ounces of water. The physicians had Dr. Moor under close surveillance for five hours after the experiment, but no ill results were made manifest. Dr. Moor's discovery is, that the permanganate will select a soluble salt of morphine from the albumen peptone, and other contents of the stomach, with astonishing rapidity." A short time after reading the above, I saw in the *Press* a paragraph headed Pittsburg, which stated, "that a man had been taken to a Hospital in a moribund state, having drunk—some two or three hours previously—three ounces of laudanum. The physicians finally,

as a last resort, employed the hypodermic use of potassium permanganate, resulting in the saving of the man's life." Having naturally inferred, from the account in the *Scientific American*, that the antidotal property of the permanganate was a chemical not a physiological one, I was rather incredulous regarding the newspaper account, and, therefore, wrote the superintendent of the hospital in Pittsburg, receiving in reply the following, which is the gist of two letters received from Dr. E. R. Grigg, the house physician.

"MARCH 20, 1894.

"DEAR DOCTOR: The clipping you sent is perfectly correct. The patient's respirations were *four* per minute, pulse not extremely weak, face cyanosed, and every reflex absent; pupils, of course, extremely small and inactive. In short, the man was dead. In four hours he was perfectly conscious, complaining only of sleepiness. The permanganate was injected hypodermically, and worked beautifully; the principal and primary effect seemed to be an increase in depth and number of respirations. His pupils were contracted and inactive for nearly twenty-four hours after he regained consciousness. From above history and description you will see that the permanganate is a physiological antidote. The permanganate solution used was very hurriedly made, so that the exact strength of the solution is not known, but I estimated it to be about one-half of a saturated solution. Each injection was *two drachms* of this solution. The second injection was given about forty minutes after the first. The third and fourth were given one-half hour apart, and the third one-half hour after the second. The last three were at fifteen-minute intervals; seven injections in all."

I sincerely hope the foregoing is not all we are to hear of the action of the new antidote.

ROBERT P. FINLEY.

ALTOONA, PA.

AN IMPROVED TWO-WAY CATHETER.

WHEN a foreign fluid is introduced into the uterine cavity, spasmodic contractions occur, necessitating means of escape of the fluid to prevent its being forced through the Fallopian tubes into the abdominal cavity, giving rise to peritonitis.

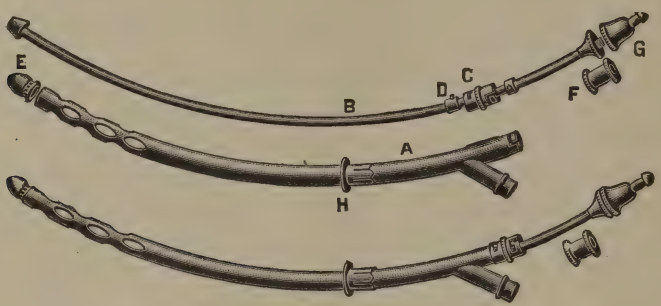
This danger exists in the administration of the vaginal douche where the os is very patulous, as well as in the intrauterine douche with a single tube, as is clearly shown by Pettit in three cases reported in the *New Orleans Medical and Surgical Journal*, 1878; also by Johnson

in two cases reported in the *Maryland Medical Journal*, 1879, in which the administration of a vaginal douche caused rigors with severe pains, followed by peritonitis and death, in spite of treatment. In one case of Pettit's a sponge tent had been removed previous to giving the douche; in the other cases the os was found very patulous.

To avoid this danger in intrauterine irrigation two-way catheters are used, but are found by practical use to be unsatisfactory, in that the return flow becomes stopped, necessitating the frequent removal and cleansing of the instrument.

In two of my cases I experienced this difficulty.

Case I.—Mrs. S. M., abortion; did well to the eleventh day, when she had pain in abdomen with fever; gave antiseptic intrauterine douche; upon repeating it the next day she experienced a succession of rigors with intense pain. On removal of catheter I found the return-tube filled with thick blood-stained mucus; peritonitis increased rapidly, and death followed in a few days.



Case II.—Mrs. J. M., abortion; intrauterine antiseptic douche used as a prophylactic; no rise of temperature occurred at any time. At each administration the return flow became stopped by thick mucus and clots, requiring removal and cleansing of the instrument several times.

This led me to devise a two-way catheter in which the return-tube can be kept free readily with removing the entire instrument.

The above cut explains it in detail:

The lower figure represents the instrument complete; above, detached: A, the outer or return-tube; B, the inner, through which the injected fluid passes to the tip E, and out through its several small lateral openings; C, a collar, with a bayonet catch at each end, by which the tubes are held together; D, a collar fitting on B and into the end of A to prevent escape of returning fluid. The tip E is screwed into the adjoining end of A. The end of the inner tube B

fits like a plug into the tip E. F, an attachment for a Davidson and G for a fountain-syringe. H, a movable collar to regulate depth of insertion of instrument. A rubber hose is attached to the side-arm of A to convey the returning fluid to a suitable receptacle. When the return flow is obstructed a slight turn of the collar C releases the inner tube, the plug end of which as it passes clears the inlet holes in A, and the entire tube to its outlet, without disturbing the catheter. I have used the instrument repeatedly, and have found it to be very satisfactory.

HOWARD REED, PH.G., M.D.
1924 NORTH TWENTY-FIRST STREET.

CLINICAL DEPARTMENT.

UNIVERSITY HOSPITAL.

[Service of Dr. JOHN ASHHURST, Jr.]

OSTEO-CHONDROMA OF CLAVICLE; EXCISION OF CLAVICLE; RECOVERY.

BENJAMIN O., aged 19 years. Admitted March 2, 1894. Family history negative. Previous history good. History of present trouble was that in July, 1893, the patient suffered a contusion of the right clavicle. About four weeks after his attention was called to the seat of injury by a second accident, and he then noticed for the first time a small nodule about the centre of the bone. This nodule had undergone a continuous increase in size; its growth, which had been more rapid during the month previous to admission, being accompanied by sharp pain, frequently referred down the arm. On examination the clavicle was found to be the seat of a tumor, ovoid in shape, occupying the middle section of the bone, and extending to within about an inch and a half of either end. It was tender to the touch, slightly elastic, and evidently undergoing ossification at the periphery. The overlying skin was slightly reddened, but otherwise healthy. A diagnosis of osteo-chondroma was made, and operation was decided on. A long incision was made over the tumor, and it was found that complete excision of the bone would be required. Disarticulation was first performed at either end, and the bone was then dissected up from within outward, removal being effected with an insignificant amount of hemorrhage. A drainage-tube was passed through the large cavity remaining, the wound closed and dressed, and the arm confined to the side in the Vel-

peau position. There was no shock following operation, and recovery was uninterrupted, the patient leaving the Hospital at the end of three weeks. The tumor proved to be an osteo-chondroma, containing several cysts, and measuring three and a half inches in the long, and one and a half inches in the short, diameter, and situated mainly on the anterior surface of the bone.

J. H. Jopson,
Resident Surgeon.

ALUMNI NOTES.

The Twenty-Fourth Annual Reunion of the Alumni Association of the Medical Department of the University of Pennsylvania will be held in St. George's Hall, Thirteenth and Arch Streets, on Wednesday, June 6, at 8.30 P.M. It is earnestly hoped that each alumnus will make a special effort to be present and add to the success of the occasion. The committee having the matter in hand will endeavor to send an invitation to each graduate of the University, and take this means, also, of bidding each son of Old Penn. The subscription, five dollars, may be sent to Dr. S. D. Risley, 1722 Walnut Street, Philadelphia.

At the Sixty-Ninth Annual Commencement of the Jefferson Medical College, held on May 9, 1894, the honorary degree of LL.D. was conferred on William Goodell, M.D.

Dr. Michael O'Hara has been appointed Medical Director of St. Agnes's Hospital, to succeed the late Dr. William V. Keating. He was born in this city in January, 1833. After graduating from the Central High School he entered upon the study of medicine, and graduated from the University of Pennsylvania in 1852, beginning at once to practise his profession.

Before the rebellion he served in the United States navy as an assistant surgeon, and during the late war was surgeon of the One Hundred and Fiftieth Regiment, Pennsylvania Volunteers. At the close of the war he resumed his practice in this city, and has long held a foremost place among the physicians of Philadelphia. Dr. O'Hara is a member of the County Medical Society, of which he was at one time Vice-President; of the Pathological Society, the Obstetrical Society, the American Association for the Advancement of Science, and a permanent member of the State Medical Society. He was a

delegate to the International Medical Congress held in this city in 1876 and also to the one held at Washington in 1880. For many years he has been attending physician at St. Mary's and St. Agnes's Hospitals and the House of the Good Shepherd.

At a recent meeting of the Board of Managers of the Norristown Insane Asylum, Dr. Charles A. Oliver was made consulting ophthalmologist; Dr. Wm. Campbell Posey being elected ophthalmologist.

Necrology.

Dr. William V. Keating died suddenly at his residence, 1604 Locust Street, Philadelphia, on April 18, 1894.

Dr. Keating was born April 4, 1824, and was the son of Jerome Keating, a Knight of St. Denis, who emigrated from France early in the century. He was educated at St. Mary's College, Baltimore, and studied medicine, graduating from the University of Pennsylvania in 1844. Then he began practising in this city.

In 1861 Dr. Keating was elected Professor of Obstetrics at Jefferson Medical College, but ill health induced him to resign soon after. From 1862 to 1865 he was the Medical Director of the United States Army Hospital, at Broad and Cherry Streets. Two of the best known works with which Dr. Keating was associated were "Ramsbotham's Midwifery" and "Churchhill's Diseases of Women." Dr. Keating was the American editor of these publications.

Besides being the Medical Director of St. Agnes's, St. Mary's, and St. Joseph's Hospitals, Dr. Keating was a member of the American Academy of Natural Sciences, American Medical Association, American Philosophical Society, a Director of the Philadelphia Saving Fund, and member of the Philadelphia County Medical Society. He also took an interest in the Society to Protect Children from Cruelty.

Dr. Keating married a daughter of Dr. René la Roche. His second wife was Miss Eliza Borie, the sister of Adolph E. Borie, Secretary of the Navy under President Grant. Dr. Keating had five children, two sons and three daughters. One of his sons, Dr. John M. Keating, who had also attained eminence in the medical profession, died a few months ago.

Nitroglycerin in Vomiting.

Humphreys has employed nitroglycerin in all forms of vomiting during the past three years. He states that it acts almost as a specific in the vomiting of gastric catarrh, acute or chronic, adult or infantile, anemic or alcoholic. The only form of vomiting in which it failed was that due to peritonitis.—*British Medical Journal.*

EDITORIAL.

DR. PEPPER'S RESIGNATION.

After thirteen years of exacting service, Dr. William Pepper, on the 23d of April, tendered his resignation as Provost of the University of Pennsylvania, to take effect immediately after the commencement in June. The reasons for this important step are clearly set forth in his letter to the Board of Trustees, which will be found in another part of the Magazine. To every graduate of the University the marvellous development of its various departments under Dr. Pepper's administration is well known. The progress which the institution has made is without a parallel in the history of education in this country. His inspiring genius, prodigious energy, boundless enthusiasm, and keen foresight have wrought a wonderful transformation. Since 1881 the property of the University has increased from 15 acres to 52 acres, the value of its estates from $1,600,000 to $5,000,000, the number of instructors in all departments from 88 to 268, and the number of students from 981 to 2180. In 1881 the University buildings consisted of a College Hall, Medical Hall, Medical and Dental Laboratory, and the University Hospital; at present there are no less than twenty commodious structures, each thoroughly equipped for special work. The courses in the different schools have been extended and the curricula improved; new departments have been instituted, several of which have already gained a national reputation, notably those of biology, veterinary medicine, paleontology and archeology, philosophy and hygiene. Perhaps no more important advance can be noted than the amalgamation of a group of disconnected schools into a great academic body which has been identified with the municipal government, and thus placed at the head of the educational system of the commonwealth. In the light of this phenomenal development, what was said of Augustus in reference to Rome can be truly said of Dr. Pepper in reference to the University, that "he had found it brick and left it marble."

To Dr. Pepper, more than to any one else, belongs the credit of the impetus which has been given to higher medical education in this country, the University being prompted to take the lead in establishing a graded four-years' course of study by the following liberal proposition from its provost:

"Being impressed with the urgent importance of higher medical education, and believing that it is the duty and privilege of the Medical Department of the University of Pennsylvania to be the leader in this final reform of medical education in America, I beg to submit the following proposition: that on condition the University shall decide and announce before June 1, 1891, that a four-years' obligatory graded course of medical study shall be established on or before September 1, 1891, I will subscribe towards a permanent endowment fund of $250,000 for the Medical Department the sum of $50,000, subject to the conditions below recited, and towards a guarantee fund of $20,000 per annum for five years the sum of $1000 annually during that period."

In the retirement of Dr. Pepper the University has lost, not only an executive officer of rare ability, but one who, by his tireless energy and unselfish devotion to duty, was an inspiration to all who were in any capacity associated with the institution. The loss to the University will, however, be a gain to the Medical Department, for in thus resigning the Provostship, he will be more free to devote his time and energies to his chosen profession.

HYDRASTININE HYDROCHLORAS. U. S. P. 1890.

Among the novelties of the recent "United States Pharmacopeia" is a salt of the artificial alkaloid, which was first produced by Martin Freund by the oxidation of hydrastine. It is a yellow, crystalline, somewhat deliquescent powder, which is exceedingly soluble in water. At present writing, although its medical properties have not yet been thoroughly worked out, it bids fair to be a very important addition to the resources of the profession. Its physiological and therapeutic range seems to be very wide. Kiselew has used it to some extent with alleged success in *epilepsy*, having been led to its trial by the previous observations of Professor Tarchanoff that it is capable of arresting the convulsive attacks of epileptic guinea-pigs, and by his own experiments which show that it decreases the excitability of the psychomotor cortex of the brain. Its action upon the spinal cord seems to be that of a depressant; at least Marfori and Archangelsky assert that the paralysis and loss of reflex activity which is produced by poisonous doses in the lower animals are of centric origin; and it is even claimed that it is the natural antagonist of strychnine.

Our present knowledge indicates that hydrastinine belongs to the group of poisons which have a universal action upon muscle-fibres, so that it affects the voluntary muscles and also the muscular coats of the intestines and the muscle-fibres connected with the circulation. It cer-

tainly would in overwhelming dose paralyze these muscle-fibres, but as with strophanthus and most other known muscle-poisons the period of paralysis is preceded by a long period of excitement. Thus, according to Von Bunge, the intestinal peristalsis is markedly increased by the salts of hydrastinine, while all observers have noticed that the blood pressure is greatly raised. The increase of the pressure seems to be in part due to the direct stimulation of the heart, and in part to the outcome by the stimulation, contraction of the blood-vessels.

Both Marfori and Von Bunge have found that the alkaloid greatly increases the amount of work done by the isolated frog's heart placed in a William's apparatus or other form of artificial circulation. It is true that in poisoning with the drug there is a final fall of the arterial pressure, which is in part the result of lack of heart-power; but this failure of the heart seems to be caused indirectly and not to be the result of an immediate action of the drug upon the viscus, since Marfori has shown that even when the pressure is very low artificial respiration will restore it to the norm. Evidently the heart-depression at such times is due to an excess of carbonic acid, which has been accumulating in the blood.

That the blood-vessels are contracted during the period of high pressure has been shown by the experiments of Archangelsky and of Marfori. Using Roy's oncometer, Marfori has determined that the drug greatly decreases the size of the kidney; and asserts that the contraction of the vessels in the kidney may be so powerful as even to arrest secretion. Moreover, in the elaborate experiments of Archangelsky, it was shown that the contraction of the vessels is chiefly of peripheral origin,—in other words, is chiefly due to a direct action of the drug upon their muscular coats.

Hydrastinine is evidently a heart tonic, and, although it has been introduced into therapeutics for other purposes, it will probably prove to be a valuable remedy in cases of cardiac weakness, and certainly should be tried with this object. It is plainly a much safer remedy than the alkaloid hydrastine, out of which it is produced and which it seems about to replace, in that even when in toxic dose it does not directly depress the heart.

Its influence as a calmative depressant of the brain and spinal cord, conjoined with its stimulant action upon the heart and arterioles, should render hydrastine a very valuable remedy in cases of general feebleness and lack of circulatory power, occurring in hysterical women and men; and when to these powers are added the extraordinary influence it possesses over the uterus, its probable importance grows. In all forms of menorrhagia, whether due to simply atony, to fibroids, or even more severe organic disease, hydrastinine is a very valuable remedy.

My own experience accords with much that has been determined in finding that it is distinctly more powerful than ergot. The arrest of the hemorrhage is usually so prompt that it hardly can be due simply to vascular contraction; and there seems little reasonable doubt that the alkaloid is a powerful ecbolic, notwithstanding the contrary assertions of Von Bunge, who bases his belief simply upon the fact that in two experiments he failed to provoke abortion or uterine contractions in pregnant animals by large or even fatal doses of the alkaloid. It is notorious, however, that even ergot frequently fails to act, and Archangelsky has found that in pregnant puerperal bitches, cats, and rats hydrastinine will usually produce pronounced rhythmic contractions of the uterus. Moreover, Dr. Faber, as the result of a number of trials upon women, states that hydrastinine given hypodermically during labor very notably increases the force and length of the uterine contractions, causing a spasm which affects all portions of the uterus, and is similar in character to that provoked by ergot. In some of the cases there was uterine tetanus, lasting as long as fifteen minutes. Dr. Faber also asserts that distinct contractions can be produced in the unimpregnated womb.

H. C. Wood.

THE WISTAR INSTITUTE OF ANATOMY AND BIOLOGY.

This institution was formally opened on May 21, 1894. Provost William Pepper made the introductory address, and was followed by Professor William Osler, of Johns Hopkins University, Professor Libby, of Princeton College, and Professor Harrison Allen, director of the Institute.

The institution has been incorporated by the Commonwealth of Pennsylvania, with a board of nine managers, of whom six are to be annually chosen by the University of Pennsylvania and three by the Academy of Natural Sciences of Philadelphia. The President is the Provost of the University, the immediate charge being committed to Dr. Harrison Allen as director, who will be aided by Dr. M. J. Greenman as assistant. The trustee, in whom is vested the perpetual custody of the endowment, is the Trust Company of North America.

The building is four stories, with a length of 223 feet and an average width of 66 feet, composed entirely of incombustible materials, the roof and floors being hydraulic concrete. It includes three large museum halls, each 130 by 50 feet, in which are being placed the display cases containing the valuable anatomical collection founded by Professor Caspar Wistar in 1808, which is believed to excel any similar collection

in America, and it is hoped may soon rival the great Hunterian Museum in London.

The building includes commodious apartments for the library, furnished with iron bookstacks and rooms for every kind of anatomical research. Suitable apartments are provided for lectures, microscopy, and photography. Workshops for the preparation and mounting of specimens are arranged on the lower floor, and are operated with steam-power from the central heat and light plant of the University, which also supplies heat and light for the entire building.

While the facilities provided for study and original investigation will be open to the entire public, the instruction to be given is intended for, and will be adapted to, advanced students who have already successfully passed the ordinary medical curriculum. The Institute will be open to any and every searcher for knowledge, and, as an adjunct to the study of the higher branches of anatomical and medical science, with its numerous carefully-designed facilities, it cannot fail to be a great permanent scientific acquisition to the University and an ornament to the city.

A Local Application for Pruritus.

Bronson has found the following oil very serviceable in pruritus:

℞ Acid. carbolic.
Liquor potass. . . . . āā f℥i.
Ol. lini. . . . . f℥i.
Ol. bergamot. . . . . gtt. ii.
Sig.—Shake well and apply locally.

—*Sem. Méd.*

Hydrocele in the Female.

Lammert gives some valuable information on this interesting question. The term correctly signifies a collection of fluid in an imperfectly obliterated canal of Nuck. This form of hydrocele is usually detected in pregnancy and childbed. According to Wechselmann, it has been found twenty-two times on the right side, seventeen on the left, and in two cases on both sides. Lammert has observed this condition in a nullipara, aged 39. It formed an enormous swelling, as big as a man's fist, in the left groin,—pyriform, elastic, transparent, and fluctuating. It was irreducible, and there was no impulse on coughing; it reached as far as the labium. On incision a pint of serum escaped; the parts were explored, and the hydrocele was found ending as a blind pouch at the internal abdominal ring.—*Centralbl. f. Gynäk.*, No. 30, 1893.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D.

Report on Typhoid Fever.

In the *Johns Hopkins Hospital Reports*, Vol. IV, No. 1, Osler reports 229 cases of the above disease, with 22 deaths, a mortality of 9.6 per cent. Since the introduction of the cold-bath treatment the percentage has been 7.1. Only one case originated in the hospital.

Treatment.—"Since typhoid fever runs a course uninfluenced by any known medicines, the duty of the physician is to see that the patient is properly nursed and fed, and that the dangerous symptoms, should they arise, are combated by appropriate remedies. A large proportion, 75 per cent. at least, of all the cases recover even without the good nursing and regulated diet upon which we lay so much stress. By judicious care and the withholding of drugs of uncertain value, 15 additional patients in each 100 are saved. And if any reliance can be placed upon figures, an extra 3 or 4 per cent. are saved by hydrotherapy. Medicines, as a rule, are not indicated. Nursing and diet are the supports on which we trust, to which are added cold baths where possible, or cold sponging. Milk is the staple article of diet." If not well borne, it is diluted with lime-water or soda-water. The cold-bath treatment is described at length. The frequency of baths depends upon the severity of the case. Four baths in twenty-four hours is the average number. He does not bathe in mild cases. The bath acts in the majority of instances as a tonic to the circulatory system. Collapse symptoms were present in 5 out of 196 cases, and the baths were temporarily abandoned. Headache is relieved. Delirium, stupor, and coma are rarely seen. The dry, brown tongue is not frequently present in cases bathed. Relapses were more common in the bathed cases than in those treated symptomatically.

Special Features and Complications—Rash.—Rose spots appeared in 86.9 per cent. In one case they were on the face. In ten cases there were small petechial spots. A diffuse punctiform erythema appeared in seven cases, mostly on the abdomen and thorax.

Fever.—The temperature was taken every two hours in the rectum. In 66.3 per cent. the temperature registered 104° F. and over at some stage of the disease. Eight cases had a temperature above 106° F.; 50 per cent. of these cases died.

Pulse.—In 97 cases the pulse was 120 or over. Only one case died whose pulse was under 120. The other 21 deaths had a pulse-rate between 129 and 160 or over.

Diarrhea.—Bowels were loose in 33.2 per cent. of the cases. Of the fatal cases, 7 had slight diarrhea, 10 profuse, and 5 had no diarrhea.

Spleen.—This organ could be felt below the margin of the ribs in 147 cases.

Relapse occurred in 7.8 per cent. Only those cases were regarded as such where after a period of apyrexia the fever rose and persisted for more than a week, and in which there were two or more prominent symptoms of the disease. Four of the cases of relapse died. In rectal temperature the normal limit is 99° F. After a decline in the original attack, a period with a temperature between 98° and 99.5° F. is sufficiently definite. There was a group of cases in which the fever remained normal for one or two days, and then there was a marked recurrence of all the symptoms. These were not considered true relapses.

A protracted fever may develop on account of a post-typhoid anemia, and must not be taken for a relapse.

Post-Typhoid Elevations of Temperature.—During convalescence there may be a return of fever for short intervals. In young children and nervous individuals the afternoon temperature may be persistently above 99° F. With a clean tongue and gaining strength this may be disregarded and the patient allowed up. Anemia and boils may also cause elevations of temperature. Apart from these there are some elevations of temperature not dependent upon sequelæ.

Typhoid Fever and Malaria.—The term typho-malarial fever has been abandoned. By a routine examination of the blood in all cases the case can usually be assigned to its proper place. If Laveran's organism is found in the blood it known to be malaria. If it is absent, malaria can be excluded. There was no case with the characters of the two diseases so blended that it seemed to be a hybrid malady; nor was there an instance where the disease was concurrent. One interesting case was admitted with true malaria, and afterwards developed a typhoid which ran the usual course.

Complications.—Parotitis occurred in five cases; melena in eight cases; hematemesis in one case. One case of typhoid occurred in a case of chronic chorea and epilepsy; the choreic movements ceased. Melancholia occurred in three cases; two entirely recovered, and one was sent home still melancholic. Hysteria occurred in four cases. Neuritis without tenderness along the nerve-trunks occurred in four cases. In all the pain was excruciating. They all made a good recovery. Local vaso-motor neurosis, evidenced by a red, swollen condition of the soles of the feet, occurred in one case. In a week the swelling disappeared from the soles, and there were two red spots on the dorsum of the feet.

Tender Toes.—A distressing acro-parasthesia was present in a number of the bathed cases. There was exquisite sensitiveness of the toes and sometimes of the soles and dorsal surfaces of the feet. The condition develops one week or ten days after the baths have been given. No change was observed in the appearance of the parts. The slightest touch caused severe pain. The condition is probably a local neuritis. It is best treated by applications of strong cocaine solutions on cotton wool.

Circulatory System.—A heart murmur was present in many instances, due simply to a weakness of the heart-muscle, or to a condition of the blood. There was no instance of endocarditis. Phlebitis occurred in but two cases. Profuse, drenching sweat occurred in four cases, and boils in large numbers in twelve cases.

In the beginning the most common error in diagnosis was to consider cases of malaria as typhoid. This was corrected by the blood examination. In ten instances the delirium was mistaken for insanity.

Pneumonia in Young Children.

Miller (*Jahrbuch für Kinderheilkunde*, Vol. xxxvii, Part ii, 1894) has studied pneumonia in the wards of the foundling asylum of Moscow. The chil-

dren who are brought to this house are mostly under six weeks old. Pneumonia is the cause of death in one-third of all these cases. The following conclusions are reached as the result of his observations:

(1) In the foundling asylum pneumonia is the cause of death in one-third of the fatal cases, and August is the month of greatest mortality.

(2) The causes of the frequency of pneumonia are partly anatomical and partly physiological, or they may be climatic or hygienic.

(3) The forms of pneumonia are various, only the smallest number are congenital (syphilitic and septic intrauterine infection). The greatest number of these developed in the first weeks of intrauterine life.

(4) The diagnosis of congenital pneumonia during life is almost impossible. It is either syphilitic or septic in origin, it is frequently lobar and diffuse and ends fatally in the period of red hepatization.

(5) Acquired pneumonia is either primary or secondary, the last twice as frequent as the first. Broncho-pneumonia, either lobar or lobular, confluent like catarrhal pneumonia of adults, is by far the most frequent form,—either primary or secondary. True lobar pneumonia is much less frequent.

(6) Primary pneumonia is much more frequently lobar than is secondary pneumonia, and it is not infrequently complicated with pleurisy, usually fibrinous, seldom purulent. It is usually single and right-sided.

(7) The secondary pneumonias are usually catarrhal and double.

(8) Primary pneumonia develops relatively, seldom upon congenital atelectasis. It may frequently develop from bronchitis, laryngo-tracheitis, and grippe.

(9) The congenital septic pneumonias are often interstitial, double, and complicated by purulent pleuritis.

(10) The so-called cerebral pneumonia (pneumonia complicated by meningitis) is seldom observed in small children as is also hemorrhagic pneumonia.

(11) Sometimes the cases terminate in gangrene of the lung, abscess, chronic pneumonia, cheesy and tubercular forms with development of large cavities or cheesy degeneration of the bronchial glands. General miliary tuberculosis is exceptional.

(12) In one-fifth of the cases it is complicated with pleuritis.

Formation of Mucous and Fibrinous Masses in the Genito-Urinary System.

V. Jaksch (*Zeitschrift für klinische Medicin*, Vol. xx, Part vi, 1893) reports two cases of unusual interest. Case i. Membranous ureteritis. A woman with a history of renal calculus was admitted in November, 1890. There were no physical signs nor history save that of renal colic bearing on the case. The interest of the case centred in the urine. It was neutral in reaction, contained albumin but no sugar. The sediment contained spiral masses about 10 centimetres long, exactly similar to those observed by Leyden and Curschman in the sputum, and Nothnagel, Litten, Jaksch, and Loos in the feces. Examination of these bodies showed an absence of the characteristic central thread of Curschman's spirals. The spirals were composed of cells of the ureter and bladder and also contained masses and crystals of sulphate of calcium. Besides these bodies the urine contained epithelium from the ureter and bladder, crystals of triple phosphates and crystals of sulphate of calcium and numerous amorphous masses of carbonate of calcium. The writer believes this to be a case of renal colic due to stone. The lithiasis having caused a membranous ureteritis, from which the spirals were formed. Case ii. Abscess of the kidney, masses of fibrin in the urine. A man of 39 was

first observed with fever and with pain in the region of the left kidney. Examination of the urine showed albumin, tube-casts, epithelium from the pelvis of the kidney and hematoidin crystals. Besides this were masses of casts 10 centimetres long, 3 to 4 millimetres thick, some white, others of red color, and composed of fibrin coagulated, covered with epithelium of the renal tubules. There were found large masses in the urine six days and then disappeared. The tumor disappeared and the patient remained well six months. After the first examination the urine was normal, and there was no tumor to be found in the region of left kidney.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

The Lettsomian Lectures on Peritonitis.

Treves (*British Medical Journal*, February 3, 17, and March 10, 1894), in an elaborate review of this subject, speaks first of the purpose of inflammation.

He claims that the inflammatory process is an absolute necessity in the majority of surgical cases, because under its action, the cells of the body rise in their millions against the invasion of micro-organisms. It is by the inflammatory process that the poison is destroyed, and the growth of the organisms arrested. In cases of tuberculosis of the lungs it is generally assumed that a destructive inflammation is the chief cause of death. It is not the inflammation which is at fault, but this process attempts to arrest the further progress of the bacillus.

Inflammation is distinctly not a malignant energy, working only for evil; it is a process with a purpose, and that a beneficial one.

The Relation of Peritonitis to the Inflammatory Process.—In a large proportion of examples of fatal peritonitis, the leading symptoms are those of poisoning and not of inflammation, and death is due rather to toxemia than to inflammation of the serous membrane.

When the patient dies and the abdomen is opened, the amount of inflammation discovered, is out of all proportion to the phenomena which preceded death. In one case there may be merely some injection of the peritoneum, with loss of its polished surface. In another there may be an ounce or so of thin greenish pus around the cecum, and not the kind of formidable effusion which would be expected in a case of death from inflammation.

In some of the most rapid cases of death after a lesion, which is known to be capable of causing peritonitis, no inflammatory changes are found within the abdomen.

It is noteworthy that the cases in which suppuration is most pronounced are among the most favorable examples of peritonitis, and that, on the other hand, the acute and most unfavorable cases are found in those which show the least inflammatory changes.

Of 100 cases of peritonitis collected from the record of the London Hospital,

seventy died ; if there be excluded from these thirteen cases, in which the cause of peritonitis was either not discovered or was due to cancer or tuberculosis, there remain fifty-seven fatal cases. In fifteen of these the exudation was found to be purulent; in eleven it was described as sero-purulent; in the remaining thirty-one examples there was no suggestion of pus.

In not a few instances of puerperal peritonitis, the cases, if regarded pathologically, are merely examples of septicemia in the ordinary sense.

The surgical treatment of the acute diffuse *inflammatory* peritonitis as a purely inflammatory affection has not been very successful. This treatment consists in incision and evacuation of the fluid. It answers admirably in suppurative inflammation of the pleura, and in cases of localized purulent peritonitis, as met with in the pelvis and around the cecum, and in the tuberculous variety, but in the general form of peritonitis is comparatively useless. The mortality attending the operation of strangulated hernia, except in connection with umbilical hernia, does not appear to have been greatly improved by the introduction of antisepsis in surgery.

The Peculiarities of the Peritoneum.—Both pleuræ may be very much inflamed, and even go on to suppuration, and still not be so severe as a like inflammation of the peritoneum. It will therefore be said, that the gravity of the two cases depends not upon a damage to the serous membranes, but upon a resulting disturbance of function in the viscera they cover. From this point of view peritonitis may be more aptly compared with meningitis.

A patient may have all the functional disturbances dependent upon peritonitis without having peritonitis, and yet live. Again, septic matter may find its way into the pleura, serious symptoms may follow, yet they are by no means fatal, and certainly not to be compared in gravity and deadliness with those which characterize introduction of septic matter into the peritoneal cavity.

The surface of the peritoneum is very considerable, probably as great as that represented by the entire integument of the body.

The membrane possesses remarkable powers of absorption, as shown by the manner in which milk, blood, and peptones are taken up. It is said to be capable of absorbing an amount equal to from 3 to 8 per cent. of the body weight.

The peritoneum offers a limited resistance to septic organisms and their products. The resistance varies within wide limits.

No tissue in the body provides more favorable conditions of healing than does the peritoneum.

The peritoneum does not show the same degree of vulnerability in all parts, nor are all portions of it alike in the manner in which certain lesions are responded to. The part which is apparently most sensitive to infection, and which is most prone to rapidly spreading and diffuse inflammation, is that which covers the small intestine.

The parietal peritoneum has certainly not so high a degree of susceptibility, and is not apt to assume the diffuse and low forms of inflammation.

Localized peritonitis is met with in those regions which are more or less unoccupied by the coils of the small bowels,—namely, in the subphrenic district, in the region of the cecum, and especially in the outer side of that region, and, lastly, in the pelvis.

It is remarkable what extensive progress a peritoneal inflammation may make in the region of the liver or within the pelvis without inducing very alarming symptoms.

Mikulicz speaks of the transverse colon as if it were a barrier to prevent the

spread of peritonitis downward, and suggests that the comparatively simple character of pelvic peritonitis may be due to the dependent position of the pelvic basin.

The peritoneum appears possessed of great sensitiveness, a matter of moment in the production of shock. Other things being equal, an operation carried out within the abdomen of a person who has had chronic peritonitis, or who has exhibited repeated subacute attacks, and whose peritoneum presents adhesions, is likely to be attended with better results than when the peritoneum has been found wholly undisturbed.

Causes of Peritonitis.—It has now become evident that peritonitis depends almost entirely upon infective processes, and that these agencies are concerned, either directly or indirectly, in every form of the disease. In a great majority of instances peritonitis depends upon what is called "continuity infection."

The author's classification of peritonitis is as follows:

(1) Peritonitis due to infection from the intestine. Under this heading are included most cases of peritonitis associated with hernia, with intestinal obstruction, and with perforation, cancerous growths of the gut, etc. The micro-organism, which is usually found in these forms of peritonitis, is the bacterium coli commune.

(2) Peritonitis due to infection from without. This division includes puerperal peritonitis, secondary to inflammatory conditions of the genital organs, and some forms of peritonitis following operations. The micro-organisms usually found here are the pyogenic cocci, and notably the streptococcus pyogenes.

(3) Peritonitis due to the pneumococcus.

(4) Tubercular peritonitis.

(5) Peritonitis of doubtful nature. Under this head will be included peritonitis due to irritant forms depending upon rheumatism, syphilis, and gonorrhea, peritonitis met with in the newly-born.

The bacterium coli commune exists normally in the human body, and is found in individuals of perfect health. It has been demonstrated to be present in the entire length of the intestinal canal. It is said to be especially numerous in the duodenum and colon. As soon as the bowel becomes the seat of certain diseases, then the bacillus becomes at once virulent. The effect of injecting a culture of the virulent colon bacillus into the peritoneum of animals varies according to the dose. In the slightest cases the animal, after an illness in which diarrhea is a symptom, recovers. In another grade a localized purulent peritonitis results, which follows a chronic course. In a third degree death is rapidly brought about by a diffuse fibro-purulent peritonitis. If a very large dose has been introduced, the animal dies of acute sepsis before any of the local phenomena of peritonitis can be produced. The presence of fluid, and especially of blood, in the abdominal cavity greatly aids in the development of peritonitis in these experiments. It has been clearly demonstrated that the bacterium coli commune can produce pus after an inoculation. In peritonitis associated with hernia, the colon bacillus is the organism most frequently found in the sac.

Experiments have shown that the organism can pass directly through the gut wall into the peritoneal cavity, even when the strangulation is of slight grade. It has also been demonstrated that this organism is the active agent in the majority of cases of peritonitis starting from the appendix. It is also a well-known fact that pneumonia is not an uncommon sequel of peritonitis, and it is possible that in certain of these cases the colon bacillus is the active agent. The exudation associated with the bacterium coli is quite characteristic. It is seen in inflammation about the appendix. The fluid is at first clear and greenish, it then

becomes greenish-yellow, then semi-opaque and foul-smelling. In chronic cases there is often produced a white, soft, custard-like material.

Peritonitis Due to Infection from Without.—This variety of peritonitis usually depends upon pyogenic cocci; of these, the streptococcus is the one most usually met with. So far as experiments go, the injection of pyogenic cocci into the peritoneum acts more vigorously if mixed with fluid difficult of absorption, or if introduced with a corrosive fluid capable of damaging the peritoneum.

In rare examples of peritonitis associated with erysipelas in distant parts, the streptococcus must be assumed to reach the serous membrane through the circulation.

Peritonitis Due to the Pneumococcus.—The pneumococcus has been found in the peritoneum of a large number of subjects of fatal pneumonia. In some few cases peritonitis has existed alone, and has been caused by the pneumococcus.

Peritonitis of Doubtful Nature.—(*a*) Peritonitis due to irritants. If its existence be established, then the existence of a non-infecting variety of peritonitis must be acknowledged. Pawlowsky injected croton oil into the peritoneal cavities of twelve animals. Of this number eight died from hemorrhagic peritonitis, and neither pus nor micro-organisms were found in the exudate.

In Fränkel's experiments, when that exudate was examined early, it was found free from organisms; but if examined later, it contained millions of organisms that had escaped through the walls of the intestine.

Blood, if it does not in itself directly cause peritonitis, is at least a favorable medium for the development of the organism. Orth believes it is possible to set up peritonitis by injecting a large quantity of blood in the peritoneal cavity, and that it induces inflammation not so much through the action of the bacteria as through the development of some fibrin ferment.

(*b*) Peritonitis secondary to gonorrhea and rheumatism. Fifteen recorded cases of rheumatic peritonitis have been collected, with nine deaths. In some of the cases the inflammation existed alone or was associated with rheumatic joints.

Peritonitis has been met with in association with gonorrhea, but inasmuch as the gonococcus will not survive in the peritoneal cavity, it is to be assumed that pyogenic cocci have found a nidus in the discharge from the genitals, and have spread by extension to the peritoneum.

The peritonitis reputed to be due to Bright's disease, alcoholism, and syphilis, has not been shown to have a specific etiological existence.

(*c*) Peritonitis of the new-born. This appears to be due to one of two conditions. It may depend upon puerperal infection, and be brought about by direct extension from the cord. It may be due to rupture of the bowel in imperforate anus or rectum.

Treatment of Peritonitis. (1) Absolute rest in the recumbent posture appears to be the first obvious indication.

(2) As regards feeding there should be no rigid formula. Let the patient take as little food as possible by the mouth, and if there be raging thirst let him have a little ice. The actual feeding of the patient should be by the rectum. The injections should be small in amount, weak, and should be peptonized. Thirst is perhaps least relieved by the injection of half a pint of warm water given alone.

If there be diarrhea the patient must be fed by the mouth.

(3) Give as little opium as possible. In the early stages of acute peritonitis, and especially in the perforating form, morphine is absolutely necessary. In the worst instances it may certainly avert death from shock.

The indication for morphia is actual pain and not mere restlessness and misery.

In the septic forms very little morphia is called for. Patients dying from general peritoneal sepsis seem to get more relief from the use of strychnia than morphia.

(4) Aperients are to be recommended in the very earliest stages, but not when the disease is once fully established.

(5) Bloodletting may still be employed with advantage in many cases, and is of especial value in cases of local peritonitis.

(6) The operative measures are represented by incision and drainage, with or without irrigation. This treatment must be considered under two heads.

In one series of cases, there is a vigorous defined inflammation, the local symptoms are marked and pus is produced. In the second series of cases the condition is represented by a general septic intoxication.

In the first series incision and drainage rank with the procedure of evacuating a large abscess; while in the second series the cut in the abdomen is to be compared with the washing out of the stomach, after an active poison has been swallowed.

Surgical treatment has been most discouraging in acute peritonitis, following upon gangrenous hernia, and upon puerperal infection. It has met with but little better results in cases of perforation, in which the serous inflammation has been well established.

In cases of purulent peritonitis an incision should be made into the abscess by the most direct route, and the cavity well drained. Where the abscess has no sharply-defined walls, as is occasionally the case in perityphlitis, the cavity had best be drained with iodoform gauze, When drainage is necessary, a stout large rubber tube is introduced into the midst of the area to be drained.

The great objection to iodoform in abdominal work, that it may induce symptoms of poisoning if very extensively employed, and strips of gauze are difficult to remove unless there be free discharge, and their use for drainage is apt to be followed by ventral hernia.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Trional.

Rychlinski (*Kron. Lekarska*, February, 1894) has employed trional in fourteen cases of insomnia occurring in neurotic or insane subjects, in doses varying from eight to sixty grains. He made in all 100 observations, carrying out in some cases counter-experiments with other hypnotics, such as chloral, sulphonal, and duboisin. His conclusions are as follows:

(1) Trional is an excellent hypnotic, particularly in functional derangements of the nervous system.

(2) It has absolutely no influence on the heart, even when the latter is diseased.

(3) It is free from disagreeable taste, and is readily soluble in hot tea or milk.

(4) No untoward effects follow its administration.

(5) The hypnotic dose of trional is smaller than that of other drugs of similar character.

(6) The advantages of trional are such that it should be preferred to ordinary hypnotics.

Sulphur in Surgery.

Lane (*Lancet*, April 7, 1894) advances additional testimony as to the value of sulphur in surgery, and repeats the following conclusions of his original paper, which was published in the *Medical Week* for December 8, 1893:

(1) Sulphur applied locally appears to exert no deleterious effect on the health of the individual.

(2) It gives rise to products which are powerfully caustic in their action; therefore it must be used in small quantities and with discretion.

(3) It destroys all organisms, whether free in space or growing in the surrounding tissues.

(4) It acts much more powerfully upon recently-incised structures than upon granulating surfaces.

(5) Its action is rendered more uniform and general and less violent by mixing it with glycerin.

(6) If used in any quantity, the drug must be removed within a day or two and irrigation subsequently adopted.

Since the publication of the above paper, Lane has used sulphur extensively, not only in tuberculous conditions, but in other infective processes, and with the most satisfactory results. He thinks its action is seen to the best advantage perhaps in recent foul wounds with extensive laceration and bruising. In his experience there is no topical remedy so perfectly satisfactory in its results in cases of lupus as sulphur, whether in the form of powder, emulsion, or ointment. In every case in which he has used it a rapid cure resulted, with practically no destruction of tissue other than the lupus tissue. In cases of cancerous and sarcomatous ulceration, he says, the destruction of the soft parts can be regulated and determined very accurately. Unlike the escharotics in common use, sulphur has no effect on healthy cutaneous or mucous surfaces, but requires the action of a granulating raw surface to determine the formation of sulphurous and sulphuric acids, which are apparently the agents that influence the vitality of the organisms and tissues with which they come in contact. He has also found sulphur most useful in the foul ulcerative stomatitis, that is so common among children of the poor, and so obstinately resists the local treatment usually adopted. In such cases, if gauze or wool dusted abundantly with the finely-powdered drug is retained in firm contact with the foul ulcerated surface for an hour or two, sufficient obstruction results to clear the surface of its infective organisms, and it then heals rapidly.

Should one application not produce a sufficient result, others may be resorted to, the number depending on the extent and locality of the ulceration, the facility with which the plug can be retained in position, etc. Sulphur, like iodoform, becomes active as a germicide only when in immediate contact with a raw surface, the living tissue causing it to form certain combinations with hydrogen and oxygen.

The Treatment of Sea-Sickness.

Charteris (*Lancet*, April 21, 1894) states that, from 300 cases of sea-sickness reported by thirty ship surgeons, he is able to justify the statement previously made by him, "That chlorobrom, judiciously taken, will prevent an attack of sea-sickness, or cut it short if it has already begun, even in those most predisposed to this terror of ocean travellers." After submitting the testimony alluded to, he draws the following conclusions:

(1) In *long* sea voyages no prophylactic benefit can be secured by the use of chlorobrom, unless for two nights before embarkation the passenger pays due atten-

tion to the stomach and bowels by taking a cholagogue pill. Further, in the case of a person who dreads a voyage a dose of the solution should be taken.

(2) The diet on board ship should be "spare and dry." Soup, pastry, and sweets should be especially avoided, and no full meal should be indulged in. A hypnotic dose (one tablespoonful and a half for a male, and one tablespoonful for a female) should be taken for three nights.

(3) In *short* voyages, when the steamer leaves perhaps at 10 P.M., the passenger should immediately retire to rest and take one of the doses mentioned.

(4) In a *shorter* passage across the Channel, a teaspoonful should be taken before going on board.

(5) By following these directions, immunity from sea-sickness is obtained in the great majority of cases; but if they be not followed, it is to be remembered that chlorobrom has no effect in arresting an outburst of vomiting. If it is given in teaspoonful doses every ten minutes until a tablespoonful and a half or tablespoonful have been taken, it will almost invariably check retching and vomiting.

Saline Injections in Acute Anemia.

Ostermann (*Therapeutische Monatsheft*, October, 1893) speaks of the advantages which the subcutaneous administration of saline solutions has over the rectal method. He selects as a site for the injection the cellular tissue around the mamma, preferably in the infraclavicular region, and employs gentle massage to facilitate absorption. One drachm and a half of salt constitutes a dose, and the fluid injected at one place is from six to nine ounces, though as much as thirty may be introduced through one opening if sufficient time be taken. The author reports the case of a woman who had several secondary hemorrhages as the result of a laparotomy, and who received four injections, about three and a half pints being used in all. One objection urged against this method is the increased work thrown on the heart, and the consequent liability to recurrence of the hemorrhage, but the author believes that this can be minimized by injecting the liquid slowly. Saline injections are recommended for the excessive thirst after laparotomies, as a preliminary step to certain obstetrical operations, such as version in placenta previa, and also when other indications of threatening collapse appear.

Blood Changes in Hydrotherapeutic Treatment.

Winternitz (*Centralblatt für klinische Medicin*, December 9, 1893) describes his investigations made upon fifty-six cases, either in health or with slight ailments, and particularly anemia. In a general application of cold to the body in varying ways the red cells in the blood of the finger and ear showed considerable increase as well as the white cells. The hemoglobin was also present in larger quantity. This increase does not take place immediately, and often an hour was found to intervene. It was often recognized two hours afterwards, but usually by this time it had commenced to decline. The white cells are less constant in their behavior. Muscular exertion has a similar but less marked effect. The effect of the application of warmth has not been sufficiently investigated. Local application of cold, as to the feet, produces a diminution in the red and white cells examined as above. The increase in the blood cells can hardly be due to augmented production, but rather to changes in the circulation, heart's action, tone of vessels, etc. The author thinks the effect, as regards metabolism, is virtually the same as if the cells were actually increased. He has shown that more oxygen

is taken up, and more carbon dioxide given off as a result of the application of cold. By methodical repetition the above changes should become permanent. He refers to the good results thus obtained in anemia and chlorosis, and thinks that in this way the beneficial effects of hydrotherapeutic measures receive a scientific explanation.

Ichthyol in Catarrhal Affections of the Bladder and Urethra.

Colosanti (*Rif. med.*, January 12, 1894) speaks favorably of ichthyol in catarrhal affections of the bladder and urethra. In gonorrhea he employs injections of a watery solution containing 2 to 5 per cent. of the drug. He concludes as follows:

(1) In cases of simple and gonorrheal urethritis ichthyol injections are very useful, inasmuch as by this means a remedy which easily and speedily destroys the vitality of the specific organisms of the disease is brought into contact with the urethral mucous membrane.

(2) In addition to its bactericidal action the drug has an "antiphlogistic" and resolvent effect.

(3) Its mode of action leaves no tendency to stricture.

(4) It causes no pain, but, on the contrary, relieves any there may be, and is particularly valuable as preventing chordee and scalding in passing water.

In cases of primary and secondary catarrh of the bladder, Colosanti washed out the viscus with ½- to 1-per-cent. solutions of ichthyol. He found that by this means pain was relieved, micro-organisms were destroyed, and ammoniacal fermentation prevented. Further, the catarrhal condition of the mucous membrane was modified, and urinary troubles relieved.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

Salivation of Pregnancy.

Green, of Boston (*Boston Medical and Surgical Journal*, April 12, 1894), reports the following case of salivation in pregnancy, which is interesting from its rarity. The woman came under observation in her twenty-seventh year, during her first pregnancy. She had not suffered from nausea and vomiting, but began early in her pregnancy to be troubled with excessive salivation. This symptom gradually increased in severity, and was especially disturbing at night. Finally, the flow of saliva became so profuse at night that the patient was unable to lie down for fear of choking, and sat bolstered up in bed with a towel placed to receive the saliva. The general health was good. The submaxillary glands were markedly enlarged and the contour of the face thereby distorted. All the drugs recommended for excessive salivation had been employed without effect. The urine

was markedly diminished in amount due to the great derivation of water through the salivary glands. Labor was terminated by forceps. During the next three days salivation occurred two or three times, the flow lasting only a few minutes. After lactation had been fully established it did not return.

Two years after the patient became pregnant the second time, and at the end of the second month salivation again appeared, but there was no morning sickness. By the fifth month the flow of saliva had become so excessive as to cause great discomfort and loss of sleep, but, as before, the general health remained good. Lithia water, freely used, increased somewhat the flow of urine and gave her the most relief. Labor was again terminated by forceps. Lactation was established on the second day, but the salivation continued for two weeks, more or less profuse; it then gradually diminished in amount, but did not entirely subside until the end of three months.

The Question of the Origin of Puerperal Osteomalacia.

Löhlein (*Centralblatt für Gynäkologie*, January 6, 1894). The supposition that osteomalacia is of parasitic origin is repeatedly affirmed, and most emphatically so by Kehrer (*Deutsche medicinische Wochenschrift*, No. 49, 1889). At that time the number holding this view was small, and to these the reported cases of healing following the Porro operation and castration showed a directly negative proof against the parasitic theory. At the present time the majority of observers agree that through the quick results obtained in many cases by operative measures, the mist that has obscured the etiology of this disease has only become thicker and more impenetrable.

Fehling has stated that in the blood and ovaries of osteomalactic patients he has failed to find micro-organisms. Löhlein had under his care a woman, for the fourth time pregnant, in whom osteomalacia had occurred at the end of the second pregnancy, seven years before. In the third pregnancy she was confined to bed for six months, yet three weeks post-partum she was able to leave her bed. In the fourth pregnancy the symptoms of the disease appeared early. At the seventh month, the symptoms not having been improved by treatment, she was delivered by Cesarean section, the Porro operation being performed. Before the patient recovered from the narcosis, Löhlein excised a piece of the ileum, the size of a bean, from the crista ilei dextra, with a sterilized knife, and placed it, with as little blood as possible, in meat-broth glycerin-agar. The plates remained perfectly sterile, while control preparations from the same culture-medium inoculated with pus showed a rich growth of staphylococci. The microscopical examination of a number of preparations from the ovaries, stained by various methods, gave also a negative result.

The patient made a slow recovery from her painful symptoms, and at the end of the fourth week could not bear pressure upon her pelvic bones.

Diet after Labor.

Öfele (*Ärztliche Rundschau*, No. 35, 1893) refers to the teaching of Munk and Uffelmann in regard to the diet post-partum, and quotes the following sentence: "It has been the belief that lying-in women should for the first eight or nine days be fed upon luke-warm, watery soup, that they should hunger and sweat; for such a belief there has been no convincing argument given nor can there be."

Öfele disputes this from the ground that Fischel has constantly found pepton

present in the urine during the puerperium. He believes that if the organism possesses such an excess of albumen, the addition of albuminous food is a waste. The peptonuria indicates that the melting down of the excess of albumen of the organism in the lying-in woman by peptonization. The capability of the organism to peptonize is limited, and the ability of the performance of the digestive organs during the first week of the puerperium is lowered; the organism cannot, therefore, at the same time, peptonize its own excess of albumen and also digest the albumen of food. One may assume that the organism of a lying-in woman who forces her digestive apparatus to peptonize the food-albumen cannot in a favorable manner involve the melting over of its own excess of albumen with perfect energy. The occurrence of puerperal fever gives a further support to the supposition that the involution of the uterus takes place through the peptonizing of the excessive albumen.

The Treatment of Pregnancy Complicated by Heart-Disease.

Sears (*Boston Medical and Surgical Journal*, March 15, 1894) reports the case of a woman, having a double mitral lesion, between three and four months pregnant, who had suffered for several years with alarming symptoms of failure of compensation. After a month's careful treatment the slightest exertion would upset the cardiac balance. He, therefore, reasoning that for a period of five months she would have increased physiological demands upon her heart and at the end of that time would have to meet the tremendous muscular strain of parturition, decided to induce abortion. This was done by dilating the cervix and packing the cervical canal with iodoform gauze. Two days later the packing was removed and the fetus found in the vagina.

Sears, after reviewing the statistics of similar cases in which nature is allowed to take its course, summarizes the following propositions:

(1) That many women with valvular disease, even when situated at the mitral orifice, pass through repeated pregnancies without the development of serious symptoms, and at times without suspecting that they are victims of such disease.

(2) That as miscarriages are very frequent, and the chances of the child's surviving more than a few years are doubtful, if the mother's condition during pregnancy has been serious, the probable fate of the latter should take so much more prominence in deciding the question of abortion.

(3) That the necessity of inducing abortion is very probable if grave symptoms have appeared during the early months or are present with an advancing lesion, or if there is a history of extreme danger in the preceding pregnancy.

(4) That if the necessity for an abortion becomes apparent, the sooner it is done the better, while the fetus is still small and the expulsive force chiefly furnished by the uterus.

(5) That the hope that relief may be given when the case has become desperate by inducing abortion is delusive, as it is possible that it only increases the danger.

(6) That marriage should be forbidden, except perhaps in very unusual cases, to women suffering from cardiac disease.

GYNECOLOGY.

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D., AND CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D., AND H. D. BEYEA, M.D.

The Recurrence of Uterine Carcinoma with Particular Reference to Inoculation Recurrence.

Winter (*Zeitschrift für Geburtshilfe und Gynäkologie*, Bd. xxvii, Heft 1) sought to determine the degree of favorable prognosis in operatively-removed uterine carcinoma through the study of carcinoma recurrence. He divides recurrence into local or wound, lymphatic gland, and metastatic recurrence. The latter takes place through the blood-current to the internal organs, and is very rare, occurring only in 2.5 per cent.

Lymphatic gland recurrence is also rare, and is seen where the uterine carcinoma comes under observation late in the disease, the inguinal, iliac, or lumbar glands being involved. The infection of these glands generally first appears where there is perhaps the smallest carcinomatous infiltration of the parametrium, and, therefore, only exceptionally in these cases can a good result follow operation. A careful examination of these glands should be made in every case, determining the amount of glandular involvement, and thus indicating or contraindicating operation. In the usual cervical carcinoma the iliac glands should be sought for. The local return is usually small, and is caused by leaving behind a portion of the growth at the primary operation. It, therefore, commonly begins in immediate relation with the incision cicatrix, and extends to the lateral portions of the parametrium,—*i.e.*, posteriorly towards the sacro-iliac articulation. Infiltration of the anterior uterine wall never takes place. To avoid local or wound recurrence, only those cases should be operated upon in which the disease has not reached the parametrium, and at the operation great care should be taken that no carcinomatous tissue, and only healthy tissue, is incised. It is known that carcinoma possesses the power of infecting healthy tissue by simply touching it, as may occur where there is a fresh wound and living carcinomatous tissue. These conditions are present in colpo-hysterectomy for uterine carcinoma. As a proof of this, Winter reports six cases in which the carcinomatous infiltration at the primary operation was limited, nothing but healthy tissue was left, and lymphatic enlargement did not exist; yet in a short time there was extensive recurrence in the form of parametrium carcinomatous infiltration of the pelvic connective tissue. He believes that it is because of inoculation at the time of operation that carcinoma of the vaginal cervix most frequently, carcinoma of the cervical canal rarely, and corporal carcinoma of the uterus scarcely ever return. The inoculation recurrence in these cases show that neither the hands of the operator, nor his instruments, should touch living carcinomatous tissue during the operation. The carcinomatous tissue should be primarily cauterized with a Paquelin, and a strong disinfectant solution applied, thus converting it into a harmless tissue. After this is accomplished the hands should be disinfected, and the instruments changed, before the first incision is made. Since a year and a half Winter has operated after this method, and has not observed a case of inoculation recurrence.

A Contribution to the Etiology of Primary Tuberculosis of the Female Genital Organs.

Frankenburger (*Münchener medicinische Wochenschrift*, No. 18, 1893) reports the following case: A woman, 26 years of age, was admitted to the Nürnberg City Hospital about six weeks after her confinement, complaining of abdominal pain. During her last pregnancy she had nephritis and the further symptoms, examination, the development of convulsions, and Cheyne-Stokes respiration, terminating in her death three weeks after admission to the hospital, lead to the diagnosis of nephritis with uremia. The post-mortem examination showed miliary tuberculosis of the lungs, spleen, kidneys, and brain; granular atrophy of the kidneys, and tuberculosis of the uterus and tubes. The entire uterine muscle to its peritoneal covering was the seat of tuberculosis, being infiltrated with numerous tubercles, containing giant cells and bacilli. The endometrium was destroyed, and the uterus lined with masses of granular detritus between confluent tubercles containing an extraordinary number of bacilli. Transverse sections through the tubes showed the wall to be somewhat hypertrophied in its entire circumference, infiltrated with small round cells, and here and there caseous masses, but no giant cells were seen. The starting-point was in the sexual organs, as this was the only place where the disease was not of the acute miliary type. This case shows that other organs—peritoneum, lungs, etc.—may be infected from a primary tubercular lesion of the female genital organs; and that, therefore, should a careful microscopic pathological study be made of these organs, in order to determine in which part the disease is most chronic, much would be learned. Frankenburger believes, since the peritonenm in this case was not tubercular, that infection must have taken place through the genital tract. Unclean hands or instruments, etc., can well explain the infection in this case. It is, of course, possible that the patient may have been infected through sexual intercourse. Whether the tubes or uterus was the seat of the primary lesion could not be demonstrated. He advises that a definite history, with the object of learning the mode of infection, should be gotten from all tubercular patients.

Small Cystic Degeneration of the Ovary.

Francis Foerster (*American Journal of Obstetrics*, February, 1894) presents the results of comparative microscopical studies of the ovaries as follows:

(1) Small cysts are of common occurrence, not only in human ovaries, but also in those of the sow, ewe, and the cow.

(2) In accord with the researches of Nagel, I am convinced that the small cysts are originally Graafian follicles.

(3) In a process not exactly pathological, the stratified epithelial lining of the Graafian follicle undergoes peculiar changes leading to its disappearance.

(4) The epithelium first breaks up into an indifferent or medullary tissue, and from this arises myxomatous vascularized connective tissue.

(5) The type of the newly-formed myxomatous tissue varies in different animals. It may be medullary myxomatous or myxomatous lymph-tissue, or fully-developed myxomatous tissue with a well-marked basis-substance.

(6) The newly-formed myxomatous tissue is always scantily supplied with blood-vessels, which probably grow into it from without.

(7) The myxomatous lining of the cyst-wall is always well defined towards the outer fibrous coat, the original capsule of the Graafian follicle.

(8) The ovule is present at the beginning of the formation of a small cyst; later it probably perishes, owing to the changed environments.

Tuberculosis of the Cervix Uteri.

Meyer (*Archiv für Gynäkologie*, Bd. 45, Heft 3) reviews the literature and reports a case of tuberculosis of the cervix uteri. The views of the several observers who have written upon this subject differ widely. Rokilansky believed that tuberculosis of the cervix is always limited. Lebert believes it never occurs. Paulsen describes it as tubercular erosion of the cervical canal, and says it never invades the vaginal cervix. Kiwisch has reported a case of tubercular erosion of the vaginal cervix. Mosler found it in four out of forty-six post-mortems made upon women who had died of tuberculosis, and Kolb and Hegar give similar results. All observers, except Friedländer, believe it occurs only secondarily. Friedländer, in making a post-mortem upon a woman dying of apoplexy, found a tubercular area the size of a cent on the vaginal cervix, abundantly covered with miliary tubercles, containing giant-cells and surrounded by a small round-cell infiltration. Meyer reports the following case:

A woman, 30 years of age, III-para, family history negative. In 1887 she had pneumonia, and the next year perityphlitis. At six years of age a small nodule appeared on her right cheek, which, when it was removed, in 1879, was diagnosed as lupus, and had reached the size of a quarter dollar. It reappeared after four years, and was again removed in 1889. Since this time the patient has been healthy. Since 1886 menstruation had become progressively irregular and profuse, and in the interval between menstruations she had leucorrhea.

Vaginal Examination.—Uterus small, normal in position, and movable. The cervix is somewhat enlarged, hard, and nodular. Adnexa normal. The cervix presents a livid erosion, which bleeds easily. The uterine cavity measures three inches. Thinking the cervix the seat of beginning carcinoma, a portion of cervical tissue was excised for microscopic examination. The result was negative, but, as hemorrhage continued, the cervix was amputated. Sections through the amputated cervix showed a circumscribed area of tuberculosis in the vaginal portion of the cervix, very near the cervical canal, composed of tubercles half the size of a pea surrounded by small round-cell infiltration. The tubercles contained many giant-cells with peripheral multiple nuclei, the remaining ground substance being indistinctly seen. The specimens were strained for tubercle bacilli, but none were found. That the condition was not a gumma is shown in the fact that there was no cell-proliferation of the blood-vessel intima, and the history and examination of the patient gave nothing characteristic of syphilis. That the giant-cells were not those found in granulation tissue is positive, since no granulation tissue was present. Meyer, although no tubercle bacilli were found, believes the condition undoubtedly tubercular, as the tissues described are only characteristic of this disease. That the disease was primary he is quite positive, since no other lesion could be found, and she had been free from lupus since 1889. Even if lupus were present, the relation between it and tuberculosis is not definitely known, the present general opinion not being in the affirmative. That it was not secondary to tuberculosis of the tubes and uterine mucous membrane is shown in that they were found to be normal. Menstruation for three months following operation was normal, it then again became irregular and profuse, and has continued thus for three months. Otherwise the patient is perfectly healthy, there being no vaginal discharge, and no possible manifestation of tuberculosis anywhere. That the hemorrhage was not due to the lesion is shown in its recurrence after operation. Should this patient not present further symptoms, the case will represent an almost unknown primary tubercular lesion.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Observations and Experiments upon Amebic Dysentery.

Kovács (*Zeitschrift für Heilkunde*, Bd. xiii), after a review of the literature and a careful study of the cases which came into his hands, came to the following generalizations:

The ameba co'i of Lösch is an intestinal parasite which has been successfully obtained in pure culture and inoculated into animals.

It is a matter of doubt whether all observers have studied the same ameba.

The ameba coli is pathogenic, and able to produce an enteritis by its presence. This enteritis is very frequently, but not necessarily, accompanied by ulceration, the ameba then appearing in the ulcer. It has not yet been determined that the ameba by itself is able to produce severe lesions of the mucous membranes. If, however, the mucosa is already the seat of disease-processes, which favor the lodgement and multiplication of the amebæ, and allow them to enter the tissues, the process of repair is very much retarded.

The ameba coli stands in near relation to the liver-abscesses and other sequelæ of the ulcerative processes of the intestines which occur in hot climates.

The appearances of the intestinal lesions produced by the ameba are very variable, depending not a little upon other complicating processes which may occur.

The amebic dysentery is a very obstinate disease, which manifests very little tendency to spontaneous recovery.

Parasitic Cellular Inclosures in Sarcomatous Tissue.

Pawlowsky (*Archiv für pathologische Anatomie*, etc., Bd. cxxxii, 1894) reports, as the result of careful study of fourteen cases of sarcoma, by a great variety of staining methods, certain intracellular bodies, having a regular developmental cycle, and without doubt a variety of the microsporidia described by Balbiani.

The developmental cycle which he describes, and which more than anything else is conclusive of the protozoan nature of these bodies, is said to begin with a spore which gains entrance to the protoplasm of the cell, divides and infiltrates the substance. These spores are surrounded by a ring of protoplasm, which is only to be seen when it attains a definite size. When the spores divide rapidly, they form a sporocyst. When this bursts, the spores escape, enter the intracellular substance of the tumor, and later succeed in entering new cells, which increase in size, divide, and show distinct signs of irritation from the presence of the parasite.

In certain of the tumors the spores were observed to have an ameboid form. Pawlowsky is not only sure that these bodies are parasites,—not leucocytes or cell-degenerations,—but equally sure that they are the etiological factor in the production of the tumor.

The Discovery of Ameba in Liver-Abscess, Dysentery, and Nosocomial Gangrene.

Nasse (*Langenbeck's Archives*, Vol. xliii). After the operative opening of what was probably a dysenteric liver-abscess, a wide-spread gangrene of the skin at the edges of the wound, almost exactly like the nosocomial gangrene, occurred. The post-mortem showed in addition wide-spread gangrenous dysentery of the colon and small purulo-necrotic areas in the liver. Neither after bacteriological examination nor after careful microscopical examination of the cut sections of the tissue could the specific organisms be determined, though a large variety of bacteria, including streptococci, were found.

However, in the liver, in the intestine, and in the skin large nucleated cells, which corresponded sufficiently with the ameba described by Kartulis, were found. These did not show ameboid movement when examined post-mortem.

In the intestine they did not occur in the necrotic areas rich in bacteria, but were very numerous in the deeper parts and in the surrounding healthy parts, sometimes without regularity, sometimes in rows corresponding to lymph-spaces and small veins. In the liver they were most numerous in the small areas without many bacteria, in the capillaries, and the branches of the portal vein. They also occurred in small numbers in the walls of the abscess.

The relation of the bacteria to the ameba in the skin was very interesting. In the oldest parts of the gangrene, where it was far advanced, the bacteria were very numerous, but were almost entirely absent from the newer parts of the disease, which bordered upon the healthy skin. The distribution of the ameba was exactly the opposite of this, their organisms being found in considerable numbers at the margins of the gangrene, while absent from its centre.

Studies of Chromogenic Bacteria.

Galeotti (*Lo Sperimentale*, xlvi, 1892, Tasc. III, p. 261) divides chromogenic bacteria into,—

(1) Those whose pigment is soluble, and readily penetrates and dissolves the culture medium ; and,

(2) Those whose pigment is solid and does not penetrate.

Of the first group the bacillus pyocyaneus may be taken as a type ; of the second group bacillus prodigiosus is a type.

Thermic studies showed that for each chromogenic organism a certain temperature exists, at which its pigment-production is at its height. As soon as the temperature ascends to so great a height as to injure the growth of the organism, its color-production becomes lessened. Certain of these bacteria, as the bacillus prodigiosus, can suffer this deterioration of vital activity, yet recover sufficiently, under other conditions, to renew the pigment-production. The addition of carbolic acid, or other antiseptics, to the culture medium will also act deleteriously upon the color-production. Certain of the organisms, however, after six or nine generations upon these media, become sufficiently accustomed to them to renew the chromogenetic activity. The bacteria which were studied were sensitive to light in the following order: bacillus lactis erythrogenes, bacillus pyocyaneus, bacillus prodigiosus, bacillus violeceus, sarcina rosea. Bacillus fluorescens, ruber, and micrococcus aurantiacus were almost indifferent to light.

The direct sunlight acted unfavorably upon the chromogenic bacteria. The violet rays of the spectrum were less favorable than the red.

Formalin as an Aid to Diagnosticating the Typhoid Bacillus.

Schild (*Centralblatt für Bakteriologie und Parasitenkunde*, Bd. xiv, No. 22, December 2, 1893) observed that the bacterium coli commune, and certain water bacteria, possessed a much more pronounced resistance to the action of formalin than the typhoid bacillus, and experimented with this reagent with the view of obtaining an additional aid for the separation of the closely-allied bacillus typhique and bacillus coli communis.

The result of the experiments showed that when a few drops of formalin were added to the moist blotting-paper within the dishes, in which full-developed cultures of the typhoid bacillus were kept, the bacilli lost their power of growth, when transferred to new culture media and placed in the incubator, in seventy-five minutes. In this instance the vapor of the reagent alone sufficed to kill them.

The addition of formalin to the culture media showed that the typhoid bacillus would not grow in neutral bouillon containing more than 1 : 15,000 of formalin, while the bacillus coli communis developed quite well in 1 : 3000, and the water bacteria were resistent to 1 : 6000.

Pathology of Hepatic Abscess.

Zancarol (*Revue de Chirurgie*, 1893) used pus from dysenteric liver-abscesses and dysenteric stools for experimenting upon cats. When the pus was subjected to microscopical and bacteriological examination for ameba and bacteria, streptococci were generally found.

The experiments consisted in injecting the pus, dysenteric stools, or pure cultures of the streptococci into the rectum and into the ischio-rectal tissues.

When dysenteric stools were injected into the rectum, out of twelve cases eleven became affected with dysentery, and six with liver-abscess with streptococci. The abscess-pus from man operated upon cats much as did the stools. The injection of cultures of the streptococci produced ulceration of the rectum with the appearance of dysentery, and the metastasis of these organisms into the lungs and liver.

Dysenteric and septic appearances resulted finally in such cases as were injected into the ischio-rectal tissues with pure cultures of streptococci.

Injection of stools containing ameba into the rectum of cats caused no increase in the number of ameba present, but caused inflammation and exfoliation of the rectal mucosa and the occurrence of streptococci in the spleen.

Zancarol believes, from the results of his experiments, that the streptococci produce the dysentery and the liver-abscesses, and that the ameba play no important *rôle* in the etiology of the disease.

Urogenital Blennorrhea in Little Girls.

Cohen-Brach (*Deutsche medicinische Wochenschrift*, 1892, No. 8) studied twenty-six cases of purulent discharge from the genitalia of little girls, and in all of them found a diplococcus, which appeared to correspond perfectly to Neisser's gonococcus. Only one case was seen in which no gonococci could be found. This case resembled leucorrhea, for the scant bluish-white secretion contained epithelium, a few pus-corpuscles, and disappeared when existing constipation was cured.

The etiology of all these cases appeared clear, for it could generally be determined that the mother or some other member of the family with whom the child had slept suffered from the same trouble.

The general course of the disease was the same in most cases. The attack began with general disturbance, fever, and anorexia. In one case the urethra, which is more often affected than the vagina, contained a plug of pus rich in gonococci. After two days the discharge became more copious, and was accompanied by an inflammatory redness and swelling of the entire genitalia, which were covered with green pus. The disease generally lasted three months, the younger children recovering sooner than others. One case lasted a year.

One case of rheumatism of the metacarpo-phalangeal articulation of the left little finger was observed. No endocarditis or nephritis was observed, and ophthalmia was found but once.

The Bone-Marrow in Pernicious Anemia.

Muir (*Journal of Pathology and Bacteriology*, February, 1894, Vol. II, No. 3, p. 354) studied five cases of pernicious anemia with changes in the bone-marrow. The femur was the bone chosen, and the marrow was taken from the middle of the shaft. From this some of the tissue was teased and studied, some spread upon cover-glasses and fixed by immersion in saturated bichloride-of-mercury solution without drying, and some imbedded in paraffine. The article is an interesting one, and leads to the following general summary of conclusions:

(1) The changes most frequently observed in the marrow in pernicious anemia may be said to be: (*a*) increased number of nucleated red corpuscles in the marrow; (*b*) transformation of the fatty marrow in the shafts of the long bones into red marrow; (*c*) absorption of the bone trabeculæ between the red marrow.

(2) A further change, which may be found in the long-standing cases, is the occurrence in large numbers of large, nucleated red corpuscles (gigantoblasts), reaching 20μ, or even more, in diameter, often with fragmented and apparently degenerated nuclei. Along with these is generally a distinct preponderance of colored over colorless elements in the marrow. The condition of the marrow in this advanced stage appears to be peculiar to pernicious anemia.

(3) The newly-formed marrow in its cellular constituents and structural arrangement closely resembles normal marrow. The eosinophile cells are specially few at first, but become more numerous afterwards. The giant-cells, whose development can be traced from marrow cells, are generally comparatively small and few in number.

(4) In the transformation of the fatty into the red marrow there are two main factors,—viz., a widening of the capillaries and an accumulation of marrow-cells (leucocytes) around them. Afterwards the demarcation of the vessels becomes deficient, and the usual marrow structure is reached.

(5) No special cells are concerned in the process of the absorption of bone which occurs; gradual softening and simple atrophy appear to take place, associated with the hyperplasia of the marrow.

(6) Pigment, much of which gives the iron reaction, may be present in the newly-formed marrow in considerable amount, occurring both in the free state and also within cells. I have found it specially abundant where the anemia has been severe and progressing at the time of death.

(7) The earlier changes can only be interpreted as an extension of blood-forming tissue of compensatory nature, due to blood-destruction; the changes (*a*) and (*b*) being similar to those produced by hemorrhage, and also found in other diseases.

(8) The further changes found in advanced cases (2) are also secondary, and are due to a long continuance of the same conditions, the nucleated red corpuscles showing a return to an embryonic type.

MISCELLANEOUS.

THE RESIGNATION OF DR. PEPPER AS PROVOST OF THE UNIVERSITY OF PENNSYLVANIA.

Dr. William Pepper, for thirteen years Provost of the University of Pennsylvania, resigned that position at a special meeting of the Board of Trustees, held on Monday, April 23. His communication, which was accompanied by a gift of $50,000, was as follows:

"With deep thankfulness I recognize that the University has reached a stage of development and prosperity which justifies me in laying down the high office you entrusted to me more than thirteen years ago, and which I have held as long as it was possible to combine the administrative labors of Provost with the demands of medical teaching and practice. This time has now passed, and I beg, therefore, to tender my resignation, to take effect after the coming commencement.

"The close of the current session will witness the completion of the formative period of the University. From a group of disconnected schools there has been gradually organized a great academic body, complete in its unity and instinct with varied yet harmonious activities. Mutual confidence and co-operation have developed a system strong enough for effective central control, yet so flexible as to admit affiliation with many separate organizations.

"Work of the University.

"To our University is due the credit of establishing university extension in America, yet the important and successful society which controls this movement has no organic relations with the University, save that the Provost is *ex officio* the Honorary President. The Wistar Institute of Anatomy and Biology, a magnificent memorial of the founder of American anatomy, has a separate charter and is not owned by the University, yet is governed by a board the majority of whose members are appointed by yourselves. The University Hospital, which has grown so prosperously, is a special trust administered by a board of twenty-two members, only four of whom are appointed by the Trustees of the University.

"The Department of Archeology and Paleontology, under whose energetic operations there is developing rapidly a museum of high rank, is governed by a board of not less than thirty-six members, of whom only six are appointed by the Trustees of the University. Reference is made to these familiar instances to illustrate the admirable

results which may develop under a system which excludes rigid control, and rests upon mutual confidence and a common devotion to a great cause.

"The University as a Part of the Municipality.

"It has been a chief aim of your board to demonstrate to the people of this great Commonwealth that the University is truly the voluntary association of all persons and of all agencies who wish to unite in work for the elevation of society by the pursuit and diffusion of knowledge and truth. No less important has been the establishment of the principle that the University, so far from being a private and exclusive corporation, is essentially and organically a part of the municipality. The large future of the University was secured when, in 1872 and in 1883, City Councils voted, without a dissenting voice, the transfer to the University of splendid tracts of ground in consideration of the establishment in perpetuity of fifty free beds in the hospital for the poor of Philadelphia, and of fifty prize scholarships in the college, to be awarded to graduates of the public schools of Philadelphia. The subsequent accessions of territory which have brought the domain of the University up to fifty-two acres, in a compact body in the centre of the city, have been the logical consequences of these great steps, and so faithfully have all the trusts and conditions been executed that it has come to be recognized by the municipal authorities that it is more profitable to the city to give freely to the University anything in its power to bestow which is needed for the development of that institution than to dispose of it elsewhere, even at a great price. It needs only the resolute continuance of this wise policy to secure for the University full recognition as a branch of the city government with a duly accredited representative of its great constituency in her councils.

"The Encouragement of Higher Education.

"Progress has also been made towards the establishment of the essential principle that the University is in right, and should be in fact, the head of the educational system of the entire Commonwealth. We may fairly claim to have done much towards securing a recognition of the view that the encouragement of higher education by the municipality and the Legislature is as proper and important in the older communities of America as it has been decided to be in the newer States.

"Work of the Past Thirteen Years.

"While the unification of the University and the establishment of broad lines of policy may seem to be the most important work of the past thirteen years, it will be found that the resources of the University

and the educational work in each department have been successfully promoted. In 1881 its property was fifteen acres, while at present there are owned or controlled by the University, in a continuous tract, and solely for educational purposes, not less than fifty-two acres. The value of the lands, buildings, and endowment in 1881 may be estimated at $1,600,000. It is now over $5,000,000. Prior to the date of the late John Henry Towne's great bequest, the University had never received a single large gift or legacy. During the current year ending September 1, 1894, there will be acquired in lands, buildings, money, and subscriptions not less than $1,000,000. The members of the teaching force in 1881 numbered 88, and the students in all departments 981; at this time the former are 268, and the attendance has reached 2180, representing every State of the Union and no less than thirty-eight foreign countries. The College Department has attained a national distinction, and its complete reorganization, which has now been accomplished successfully, gives sure promise of sound and rapid progress. The Medical School has been advanced to pre-eminence in equipment and prosperity, while plans now maturing will place it abreast of the great schools of Europe. The Law School has effected the promulgation and elevation of its curriculum, and has deservedly won national repute. Encouraging progress has been made towards providing an admirable building on an improved site, so that the future eminence of the school is assured. Gratifying reports may be made of the position of the Dental and Veterinary Departments, and well-considered plans for their still further development need only time for their fulfilment. Upon this vigorous basis rests the Department of Philosophy, which, although organized as late as 1884, and still without special endowment, has already 154 students. It represents the University in its highest and best intellectual life; it affords inspiration to teachers and students; it has enabled us to extend the richest privileges of the University to women on equal terms with men; it points the way to large endowment of rich research and advanced scholarship.

"The necessity of dormitories to the development of the best University life has come to be clearly recognized by your board, and generous friends stand ready to supply this important need.

"It is pleasant in the days of strength and prosperity to reflect upon those of doubt and struggle, when ridicule met the assertion, the truth of which is now freely conceded, that nowhere can a great university be developed so favorably as in a great city.

"Dr. Pepper's Reasons for Withdrawing.

"In closing my term of service as Provost, I may be permitted to allude to the motives which impel me to this step. The labor of these

thirteen years has been so severe, in connection with my professional duties in the Medical School, and with the extensive medical practice necessary to provide the funds which have enabled me to initiate nearly all of the large movements undertaken during this time, that I have often felt that my life was specially preserved for the work. It has, however, been growing evident, for several years past, that the time was approaching when the immense extent of the University interests would demand the undivided activity of the most energetic men. It has now become necessary for me to choose between administrative work and medical science. My devotion to the latter has determined the choice.

"No official has ever been associated with more affectionate and indulgent colleagues, or has enjoyed more loyal co-operation than has been extended to me. I am confident that the choice of my successor will be wisely and promptly made. I do not leave the service of the University, but will remain, with more free hands, ready to serve her every interest with utmost devotion.

"I invoke upon your continued labors in government of this grand institution the richest blessings of Almighty God, who has in the past so signally guarded it.

"WILLIAM PEPPER.

"UNIVERSITY OF PENNSYLVANIA, April 23, 1894."

At a subsequent meeting of the Board of Trustees the committee appointed to take action on the resignation of Dr. Pepper reported as follows:

"The committee appointed by the Board of Trustees of the University of Pennsylvania, on the 23d of April, 1894, to consider and report what would be a suitable expression of their appreciation of the services of Dr. Pepper as Provost of the University, and what action is made necessary by his resignation, with instructions to nominate, as soon as possible, a suitable person to fill the vacancy in the Provostship caused by Dr. Pepper's resignation, met on Wednesday, April 25, all the members being present.

"After considering and discussing the subjects referred to the committee, it was unanimously resolved to recommend to the Board,—

"*First.*—That the resignation of Dr. William Pepper as Provost of the University be accepted.

"*Secondly.*—That at their next meeting the Board request Dr. Horace Howard Furness to make an address at the ensuing commencement expressive of the views of the Board of Trustees in regard to the services of the Provost to the University, and of their regret at his retirement from the office which he has filled with distinction and efficiency unexampled in the annals of the University.

"*Thirdly.*—That the Board of Trustees confer on Dr. Pepper, at the ensuing commencement, the honorary degree of LL.D.

"*Fourthly.*—That the committee having been informed that a statue of Provost Pepper is to be presented to the University, recommend that it be accepted, and that a suitable site be assigned to it.

"It was further resolved that Dr. Mitchell be requested to prepare a minute to be adopted by the board on the occasion of Dr. Pepper's retirement, to be suitably engrossed and signed by all the members of the board, and sent to Dr. Pepper. Also, that the question of suggesting to the board a nominee for the position of Provost be postponed for the present. The committee adjourned until Monday, April 30, at 8 P.M. At this meeting it was determined to report that the committee is not prepared to make any recommendation as to the future Provost, but asks to be continued.

"J. VAUGHAN MERRICK,
"S. WEIR MITCHELL,
"JOSEPH S. HARRIS,
"JOHN B. GEST,
"SAMUEL DICKSON."

In accordance with the request of the committee, Dr. Mitchell offered the following resolution:

"At the request of your committee, I present the following as its resolutions, to be entered on the minutes and signed by all the Trustees. I also move that it be fittingly engrossed, signed in like manner, and presented to the Provost:

"*Resolved*, That the Trustees of the University of Pennsylvania have heard with regret of the intention of their Provost, William Pepper, to resign his post as the head of the University; that they gratefully record their sense of his services, which have raised this institution to its present condition of prosperous activity, created new departments, lifted and vitalized those long existent, and made the University of Pennsylvania an ever-flowing source of good influence to the City of Philadelphia, and the State whose name it bears.

"That, in parting with the courteous chairman, who has so long presided over their meetings, the Trustees desire to thank him for the rare intelligence, the unfaltering industry, and the devoted care which have characterized his relation to the great trust he has now laid down; that the Trustees accept with the utmost gratitude the last of the many gifts which have so nobly illustrated an unfailing generosity; that they gladly share with him the feeling that his resignation creates only an official and partial separation, and unite with him in the wish that he and they shall work together for the further bettering of the vast edu-

cational work which the Provost has himself so developed as to make it impossible for one man to carry its burden.

"That in Dr. William Pepper's retirement from the post long held by him with exceptional usefulness, the Trustees desire that he take with him their assurance of friendly sympathy with his future, and their ever-grateful remembrance of services which should stand alone in the annals of the University and remain, indeed, without parallel in the history of any other of the great American homes of learning."

The report of the committee was adopted, as well as the resolution offered by Dr. Mitchell. The recommendation that the degree of LL.D. be conferred on Dr. Pepper at the coming commencement was passed by the Trustees, and Dr. Horace Howard Furness accepted the invitation to deliver an address commemorative of Dr. Pepper's valuable services.

A site between the arches of the wall which separates the main reading room and the alcove room of the library was assigned for the Pepper statue.

CHARLES C. HARRISON CHOSEN ACTING PROVOST.

At a special meeting of the Board of Trustees of the University of Pennsylvania, held on May 15, 1894, Mr. Charles C. Harrison was elected Acting Provost, to fill the place made vacant by the resignation of Dr. William Pepper. Mr. Harrison was the choice of the committee for the Provostship, but he felt unwilling to assume the responsibility. He was induced, however, to temporarily undertake the discharge of its duties.

A BRONZE STATUE OF DR. PEPPER TO BE PRESENTED TO THE UNIVERSITY.

Several months ago a few friends of Dr. William Pepper were of the opinion that his services to the University of Pennsylvania had been so conspicuously valuable, and that he had discharged the duties of his office with such remarkable fidelity and success, that some token of appreciation should be offered. After several consultations it was decided that it should take the form of a bronze bust of the Provost, and that this should be presented to the University.

Later, when it was learned that Dr. Pepper had resigned the Provostship, they felt that this bust was entirely inadequate for the purpose, and they therefore concluded that a life-sized bronze statue should be presented to the University at the June Commencement.

The Trustees subsequently decided that this should be placed in the Library Building. At a meeting held three weeks ago a committee was organized and Mr. Charlemagne Tower, Jr., was appointed president and Mrs. Stevenson, secretary. There were present Professor Jastrow, Professor Jayne, Professor Wilson, Gregory B. Keen, librarian, Professor John Marshall, and Dr. Judson Daland. This committee resolved that a statue should be ordered at once, and the execution of this work was entrusted to the well-known sculptor, Mr. Ritter, of New York. The committee then increased its members by electing a representative from each of the departments of the University of Pennsylvania. Originally it was intended that subscriptions would be received only from the various faculties, but the committee agreed that any of the alumni and students that desired should be granted the privilege of expressing their appreciation of the services rendered by the retiring Provost by enrolling their names as contributors to this fund. This movement met with prompt and rapid response, and the plan was received with much enthusiasm. It is estimated that the statue will cost about $3000, and already this sum has been subscribed. Some idea of the wide-spread popularity of this testimonial may be gathered from the statement that among the instructors and demonstrators of one department alone, namely, the Medical, more than twenty-five have enrolled their names as subscribers.

THE EXAMINATION OF GYNECOLOGICAL SPECIMENS.

In order to extend the usefulness of the Pathological Laboratory of the Gynecological Department of the University of Pennsylvania, the following plan has been adopted:

Any physician may send to the pathological laboratory any specimen for examination on which the diagnosis or the prognosis of a gynecological case may depend. A fee of five dollars will be charged for such examination in case the patient is able to pay. If the physician states that his patient is too poor to pay, the examination will be made free. The necessity for some arrangement of this kind, especially in making an early diagnosis of malignant disease of the uterus, is widely felt.

This offer applies to private, not to hospital, patients. The specimen should be placed in 95 per cent. alcohol, and directed to the Professor of Gynecology, Hospital of the University of Pennsylvania, 3400 Spruce Street, Philadelphia.

A brief history of the case should be sent with each specimen.

A report will be returned to the physician within two weeks after the receipt of the specimen.

MEETING OF THE CLEVELAND MEDICAL SOCIETY.

THE second quarterly meeting of the Cleveland Medical Society will be held in Cleveland on the 22d of June. The feature of this meeting will be an address by Dr. William Pepper in the evening. Dr. Pepper has also accepted an invitation to hold a clinic at one of the hospitals on the following morning.

Although this society is only in its second year, it is already in a very flourishing condition. The plan of holding special meetings quarterly, to which prominent members of the profession from different parts of the country will be invited, is indication of an actively progressive organization. The society already has more than 200 resident members. Permanent quarters are being arranged for, and a library has been started to which several large and valuable collections have already been donated.

THE PHARMACEUTICAL ERA.

THE May 1st issue of the *Pharmaceutical Era* is called its "Moving-day number," and commemorates the removal of that paper from Detroit to New York. We understand that the copies of this issue are the most elaborate ever sent out by any drug publication in this country, and the edition is said to be the largest ever issued by that class of papers.

Over the regular cover of the journal has been placed a lithographed cover showing a moving scene on the front page, and a conspicuous New York view on the back cover. The reading pages of the issue have been materially increased, and are embellished throughout by attractive illustrations. Among the special articles is a sketch of the history and mechanical production of the *Era*, also an article on "A Druggist's Visit to New York." The advertising pages are very numerous, and the publication, as a whole, a credit to its publishers.

ANNUAL MEETING OF THE AMERICAN DERMATOLOGICAL ASSOCIATION.

THE eighteenth annual meeting of the American Dermatological Association will be held in Washington, D. C., May 29, 30, 31, and June 1, 1894. The sessions will be held in the Arlington Hotel.

BOOK NOTICES.

A Text-Book of the Theory and Practice of Medicine by American Teachers. Edited by William Pepper, M.D., LL.D., Provost and Professor of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania. In two volumes. Illustrated. Vol. II. Philadelphia: W. B. Saunders, 1894.

The second volume of this text-book opens with an excellent chapter on General Considerations Concerning the Biology of Bacteria, Infection and Immunity, by Dr. William H. Welch. The important part which bacteriology plays in modern medicine renders a brief discussion of the subject imperative in a text-book of this scope, and in the space at his disposal the writer could not have presented more clearly the practical side of bacteriology and its bearing upon infection and immunity. To Dr. Henry M. Lyman has been assigned the diathetic diseases,—rickets, osteomalacia, obesity, biliary lithiasis, gravel, diabetes, polyuria, rheumatism, gout, and rheumatoid arthritis. The articles on diabetes and gout deserve special mention. Dr. William Osler has contributed a series of valuable papers on diseases of the blood. He divides primary or essential anemias into two forms,—chlorosis and progressive pernicious anemia,—and secondary anemias into three varieties, according as they result from hemorrhage, inanition, or toxic substances, organic or inorganic. Leukemia and Hodgkin's disease are discussed as independent affections and not as primary blood diseases. In reference to their etiology, Dr. Osler inclines towards the theory of infection. The editor, Dr. William Pepper, contributes about one-third of the present volume, the articles on diseases of the circulatory system and gastro-intestinal tract coming from his pen. These subjects have been treated in a masterly style, and this section of the work will prove a valuable aid to the study of these important affections. The chapters on Diseases of the Nose, Larynx, Bronchi, and Pleura have been furnished by Dr. James C. Wilson. The traditional distinctions between membranous croup and laryngeal diphtheria have been disregarded, and both affections described under the term pseudo-membranous laryngitis. Dr. Wilson aptly says in discussing the subject, "Physicians who look upon every case of pseudo membranous laryngitis as a probable case of diphtheria enjoy the practical advantage of erring, if err they do, upon the safe side. . . . Those, on the other hand, who, governed by tradition and authority, regard these cases of membranous croup, to their minds neither specific nor contagious, too often expiate in the toils and sorrows of a virulent local epidemic their devotion to a dogma unsupported by facts." The description of capillary bronchitis as an independent disease has also been wisely omitted, the subject having been considered in connection with broncho-pneumonia. Interesting articles on diseases of the lungs and kidneys have been written by Dr. Francis Delafield. We fear that the

classification of the chronic productive pneumonias will be rather confusing to students. In the treatment of acute lobar pneumonia the author, after stating that cold affusions to the chest, cold baths, blisters, the antipyretic drugs, quinine, and carbonate of ammonium have all been much used, but are all of doubtful efficacy, strangely enough advises a combination of aconitine and digitaline. Under the treatment of uremia, we regret the omission of venesection as a therapeutic agent. The concluding chapters on Diseases of the Peritoneum, Liver, and Pancreas are by Dr. Reginald H. Fitz. The text is interspersed with numerous well-executed illustrations. Altogether, the work is an exceptionally creditable one, and the editor is to be congratulated on having produced a text-book fully worthy to represent the practice of medicine as it is taught in the best American schools.

TUMORS, INNOCENT AND MALIGNANT. Their Clinical Features and Appropriate Treatment. By J. BLAND SUTTON, F.R.C.S., Assistant-Surgeon to the Middlesex Hospital, London. Philadelphia: Lea Brothers & Co., 1894.

The author tells us in the preface to the work that "very early in the practice of his profession he became convinced of the great increase in diagnostic power that results from the combination of pathological and clinical knowledge." No argument will be required to establish the truth of this claim, and this idea is the key-note to the book under discussion.

The author divides tumors into four groups: I. Connective-tissue tumors. II. Epithelial. III. Dermoids. IV. Cysts. The first group includes the following genera: Lipomata, chondromata, osteomata, odontomata, fibromata, myxomata, gliomata, sarcomata, myomata, neuromata, angeiomata, lymphangeiomata. The epithelial tumors include the various forms of papillomata, epitheliomata, adenomata, and carcinomata. Dermoid tumors are divided into sequestration dermoids, tubulo-dermoids, ovarian dermoids, and dermoid patches. The subject of cysts is considered under retention cysts, tubulo-cysts, hydroceles, and gland cysts. Each of these varieties is separately considered in the different locations in which they occur, and the clinical course symptoms and treatment are described.

In the consideration of carcinoma a wide departure has been made from the usual teaching. The term scirrhus, colloid, and medullary, or encephaloid, have been dropped. The word cancer is employed to indicate malignant adenomata, the particular species being determined by the structure in which the cancer arises. Two varieties of mammary cancer are described,—acinous cancer and duct cancer. These correspond with what have heretofore been described as scirrhus and encephaloid. It is pointed out that in no organ in the body is the diagnosis of neoplasms more uncertain than in those affecting the mamma. The author holds it to be the duty of every surgeon before removing a breast to make an incision into the tumor in order to clear up the diagnosis.

Two hundred and fifty-nine cuts and plates illustrate the gross appearance and the microscopic pictures of as many characteristic and

interesting conditions. The value of the text is enhanced by two special indexes,—in one the various tumors which affect each organ are arranged alphabetically, and in the other the distribution of tumors among the organs is indicated.

With regard to treatment, early removal is advised. The author states that the more this necessity is recognized, and the more generally the impotence of drugs when employed against tumors is realized, the more successful will the surgery of tumors become. "It is a noteworthy fact that most pathologists who have taken comprehensive views of tumor-formations, and have made it the subject of serious and prolonged study, are of opinion that tumors, innocent and malignant, are in the beginning local troubles, and that the safest and most effectual method of dealing with them may be expressed in one short sentence,—thorough removal whenever this is possible at the earliest possible moment."

Mr. Sutton's work will be found of great value to all interested in the study of tumors.

A Manual of Therapeutics. By A. A. Stevens, A.M., M.D., Lecturer on Terminology and Instructor in Physical Diagnosis in the University of Pennsylvania; Demonstrator of Pathology in the Woman's Medical College, Philadelphia; Physician to St. Mary's Hospital and to the Southeastern Dispensary; Pathologist to St. Agnes's Hospital, etc. Philadelphia: W. B. Saunders, 1894.

This manual has been prepared as an outline of therapeutics to be used in connection with the systematic study of the larger text-books. It is manifestly impossible for the student to rapidly review a subject in the larger works in which the valuable matter is so intimately interwoven with extended discussions and a large amount of historical matter. This is particularly the case in reviewing a subject for examination when it is essential to commit the salient points, but when all other matter tends to be confusing. The book under consideration is eminently fitted for this purpose. The essential features of the subject, or what may be called facts in therapeutics, have been systematically grouped together in the manner which best facilitates the study of the subject, while all other matter has been excluded.

In the first chapter the physiological action of drugs is discussed. The different drugs are arranged into classes according to their actions, and the indications in each instance are explained. The different drugs are then briefly considered as regards their origin, description, physiological action, toxicology, therapeutics, and administration. Under the heading "Remedial Measures Other Than Drugs," are considered the various antiseptic and disinfectant agents, bloodletting, cold, counter-irritants, electricity, heat, lavage, massage, and transfusion. A chapter is devoted to "Applied Therapeutics." The principal diseases are here taken up in groups, and the proper treatment for each outlined. A large number of valuable prescriptions are included, in each case having been carefully selected with a consideration of its

especial adaptability, and when derived from another source, credit has been given. A brief chapter on Incompatibility in Prescriptions and a Table of Doses is also appended. The volume is concluded by a very full index, which adds greatly to the usefulness of the work in facilitating easy reference to any subject treated of in the book.

The author has faithfully presented modern therapeutics in a comprehensive work of 400 pages, and while intended particularly for the use of students, it will be found a reliable guide and sufficiently comprehensive for the physician in practice.

A MANUAL OF DISEASES OF THE NERVOUS SYSTEM. By W. R. GOWERS, M.D., F.R.C.P., F.R.S., consulting physician to the University College Hospital; physician to the National Hospital for the Paralyzed and Epileptic. Second edition, revised and enlarged. Volume II, Diseases of the Brain and Cranial Nerve, General and Functional Diseases of the Nervous System. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut St., 1893.

The first volume of this work, which deals with the diseases of the nerves and spinal cord, was noticed in the MAGAZINE for June, 1892. The second volume, like the first, has been most carefully revised for the present edition. This has necessitated the rewriting of some portions, while frequent additions have been made necessary by the advances of the last five years. The high praise which was bestowed upon the first volume is equally deserved by the second. We know no work which so clearly sets forth the disease of the nervous system as the one before us. The name of Gowers has for many years been synonymous with the most advanced position in this department of medicine. Considerable space is devoted to treatment of the various affections. This feature will be particularly appreciated, while this is always desirable, nowhere is it more important than in diseases of the nervous system. The discussion of the symptoms and diagnosis is equally full.

In conclusion, we may recommend without reserve all who desire the latest and most accurate information on nervous diseases to procure this work.

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UNIVERSITY OF PENNSYLVANIA PRESS,
716 Filbert Street, Philadelphia, Pa.

UNIVERSITY
MEDICAL MAGAZINE

JULY, 1894.

THE CONSERVATIVE TREATMENT OF THE FEMALE PELVIC ORGANS.[1]

By William Goodell, M.D., LL.D.,

Honorary Professor of Gynecology in the University of Pennsylvania.

Although a co-referee, I have taken the liberty of changing the title of my paper to that of the Conservative Treatment of the Female Pelvic Organs. This substitution of the more generic word *treatment* for the specific one of *surgery* does not, as will be seen, make me a traitor in the camp. But it enlarges the scope of the subject, and is more in keeping with my own views. For I hold that, besides strictly surgical ones, there are other kinds of conservative treatment, which are especially adapted to the ailing organs of the female pelvis.

The question on which hinges the conservative treatment of the female pelvic organs is, What effect upon a woman has the removal of her appendages? Unquestionably, there usually follow the annoyances of the change of life. These, in my experience, are long spun out, because, when menstruation has been abruptly and artificially stopped, the change of life, especially in young women, takes a longer time to become fully established than when the menopause has been attained naturally. Consequently, months may elapse—nay, even years—before the victim of the operation escapes from the perspirations, the heat flashes, the skin tinglings, the numbness of the extremities, the nerve-stress, the nerve-storms, and all other vaso-motor disturbances which are so hard to bear.

[1] Read before the Congress of American Physicians and Surgeons, at Washington, D. C., May 31, 1894.

Then, again, the unwelcome fact cannot be ignored that mental disturbances may be traced directly to the ablation of the ovaries. This is manifested by morbid broodings, by low spirits, by melancholy, by suicidal impulses, and even by insanity. Every ovariotomist regretfully has met with such painful episodes in his practice. Glaevecke, who has made extensive researches on this subject, goes so far as to say that "in almost all cases the mind becomes more or less affected, and not infrequently melancholia results."[1] Keith has stated that 10 per cent. of his patients who recover from hysterectomy subsequently suffer from melancholia or from other forms of mental disease. Yet this result must have come in his cases,[2] not so much from the removal of the womb, which is merely a muscular bag, as from the associated ablation of the ovaries, of which the womb physiologically is only the appendage. Sinkler, who carefully and impartially has studied this subject, believes that Glaevecke's "statement is, undoubtedly, too extreme, but the number of cases of insanity following oöphorectomy is large."[3]

Whether this deplorable event is due directly to the nerve-shock of the operation itself, together with its emotional environment; whether to the abrupt cessation of an habitual flow, or whether to the absolute need of the ovaries for mental equilibration, is yet an open question. We know, however, that sexuality is a potent factor in women, as well as in men, and that even certain sexual functions, such as coition, menstruation, gestation, parturition, and lactation, of themselves, tend not infrequently to disturb the mental poise. I am disposed, however, in a measure to attribute the attacks of insanity in those women who have lost their ovaries to their brooding over the thought that they are unsexed; and if brooding may be deemed in itself a mental aberration, Glaevecke's sweeping statement is not an extravagant one.

But, above all, the burning question is, Does the removal of the uterine appendages affect the sexual sense of the woman or in any way unsex her? Here we have an embarrassing diversity of opinion. Some operators contend that in these respects castration does not change her at all; others, that it does so, and often very decidedly. The truth in such cases usually lies in the mean, as I shall try to show.

After a close study of this subject, it seems to me that the fairest comparison of a castrated woman is not to a castrated man, but to a woman who has reached the menopause before her time. Now, the

[1] New York Medical Journal, July 20, 1889, p. 73.
[2] Ibid., p. 73.
[3] University Medical Magazine, December, 1891, p. 176.

natural change of life when fully established, but not until it is fully established, does very sensibly dull and deaden the sexual sense of women, which ultimately disappears in her long before virility is extinguished in man. Reveillé-Parise, in his classic treatise on old age, enlarges on this fact, and makes the period of gradually lessening sexual feeling in women to last from the age of 45 to that of 50, when this sense is usually lost.[1] This is most marked in those women who have reached the menopause much earlier than the usual time for it. Such women, it is well known, lose their sexual feeling very soon after the cessation of menstruation. Nor is the survival of the sexual feeling after the menopause so essential to the woman, because, when menstruation ceases, she loses the power of procreation, which, however, is retained to an advanced age by the man. Now, what happens in the natural change of life holds good in that artificially produced, with this important difference, that in the latter the sexual feeling is sooner dulled and sooner lost.

My own large experience would lead me to the conclusion that in the majority of women who have been castrated the sexual impulse soon abates in intensity, much sooner than after the natural menopause, and that in many cases after the lapse of a few years it wholly disappears. This tallies with Glaevecke's verdict, that "in most of the cases the sexual desire is notably lessened, and in many cases extinguished." In corroboration of this statement I could cite many cases in point, but time forbids.

Dr. Gill Wylie[2] mentions as one result of castration the atrophy, senile in character, of the external genitalia, which makes coition often very painful. He refers also to a distressing hyperesthesia of the vulva in young women who have been castrated. These conditions I have occasionally seen. One of my patients operated on two years ago, who was unusually amorous before castration, now not only has lost all sexual feeling, but she suffers much pain during sexual intercourse. Yet with true womanly devotion she has studiously kept her husband in ignorance of these facts. Another woman, operated upon not quite a year ago by one of my friends, "abhors sexual intercourse" to such a degree, on account of this hyperesthesia, as to make her married life an unhappy one.

There are yet two other points of importance relating to the castration of women. The first one is, that sterility follows the complete extirpation of the uterine appendages. Now barrenness is a frequent cause of domestic unhappiness, and is in itself often a great curse. Further, as women advance in age there comes an irresistible yearning

[1] Traité de la Viellesse, Chapter IX.

[2] American Journal of Obstetrics, November, 1891, p. 1374.

for offspring, and she often repeats that despairing cry of Rachel, "Give me children or else I die." What physician is there of ripe years who has not been importuned by women, hitherto wilfully barren but now longing for children, to undo the mischief caused by preventive measures.

The next point is this one: The majority of physicians and all laymen look upon women deprived of their ovaries as unsexed. Just as castration in the male, so castration in the female is deemed a sexual mutilation to which common consent attaches a stigma. No woman would marry a eunuch, and few men would wed a woman deprived of her ovaries. In my own practice I have known of several very sad cases of married engagements broken off, of marital infidelity, and of bitter estrangement between husband and wife, all of which could have been avoided had one ovary been spared, or, indeed, had a mere fragment of one been left behind.

To sum up the foregoing statements: It is manifest that during the period of woman's menstrual life, her mental, physical, and social welfare depend greatly upon the continuance of the catamenial and reproductive functions. Therefore the conservation of those organs which preside over these functions is of the utmost importance, and should be so regarded by the physician.

As a help to the conservative treatment of the female pelvic organs, let me consider a few points. In the first place, the fatality of chronic diseases of the appendages is greatly overrated, and that factor need not greatly disturb us or hurry us on to hasty operative interference by abdominal section. Too many appendages have been needlessly removed and too many lives have been needlessly sacrificed. Far more women perish from the operation of removing the tubes and ovaries than from their diseases themselves. In this opinion I am confirmed by Reamy, who states that in forty years he had "not seen five cases of death directly traceable to ruptured pus-tubes."[1] After the patient has safely passed through the acute stage of the inflammatory attack, her life is in very little danger. Chronic diseases of the appendages usually affect the well-being of the woman, but they ordinarily do not threaten her life in any other way than by the wear and tear of prolonged discomfort. They may shorten her days, but fatal attacks of peritonitis or deaths from chronic abscess or from the bursting of a pus-tube into the cavity of the peritoneum are extremely rare.

To restore the health of a woman whose appendages are diseased, or to relieve her sufferings, abdominal section is by no means always necessary. Of the advantages of Polk's method of curetting the

[1] American Journal of Obstetrics, April, 1894, p. 525.

womb and of packing its cavity, I have had ample demonstration. Let me refer to one case: An uncommonly handsome and finely-formed woman came under my care for nerve-prostration heightened by menorrhagia and by a constant nagging pain in the left ovarian region and down the right thigh. The cervix was torn and the womb hypertrophied. Both ovaries were swollen and tender, especially the left one; while the left tube was distinctly enlarged, tortuous, and fixed. I repaired the cervix, curetted the womb, and gave my patient rest, massage, electricity, and topical treatment; bu not drainage. She was in many respects greatly improved, but the menorrhagia still persisted and the ovarian pain stubbornly held its own. She was such a splendid specimen of female humanity that I shrank from mutilating her by the removal of the offending appendages. Dr. Polk had just published his valuable paper on uterine drainage, so I sent her to him. He confirmed my diagnosis, and by the use of the curette and uterine drainage restored her to complete health. Here was a case so stubborn that it would ultimately have driven even me to the castration of my patient had not conservative surgery cured her. Since then I have repeatedly employed Polk's method with great advantage to my patients.

Many women with adherent tubes and ovaries, and for the matter of that, some even with pus in these organs, suffer either no inconvenience whatever or very little indeed from that condition *per se*. I know numbers of such women, some with fixed appendages and some with pus in their tubes, who now never need medical advice, and who are to all intents and purposes well. There are, again, others who have pains and aches only at their monthly periods. Let, however, this health break down from grippe, from influenza, from malaria, from overwork or from nerve-strain; then symptoms may arise from their hitherto latent pelvic lesions. Yet in most of these cases no surgical operation whatever is needed, for, if the woman can be restored to her former condition of health,—that is to say, that which she enjoyed just before her final breakdown,—she will lose her local symptoms and become symptomatically well. On this matter I can speak positively, for many a patient has been sent to my private hospital to have her distinctly damaged tubes and ovaries removed, who has been restored to health without a resort to the knife. By the use of rest, massage, and electricity, by a general building up of the whole system, and by topical treatment, there have been cured by me cases with all the objective and subjective symptoms of ovarian or of tubal abscess. In some few of these cases this treatment was followed by conception, pregnancy, and parturition. In at least two such cases in which I urged castration, fortunately refused, the patients subsequently conceived and gave birth to living children at full term. Nor is my own

experience isolated. At the last meeting of the American Gynecological Society, Dr. Robert A. Murray [1] gave a clinical report of six cases of double pyosalpinx. He had treated them by Polk's method of uterine drainage, and they all afterwards conceived and bore healthy children. In the discussion which followed the reading of this paper, Dr. George M. Edebohls stated that he "had known a number of cases of true pyosalpinx get well, the women afterwards becoming pregnant." Lusk, Chéron, and Dolèris have had an analogous experience. The latter goes so far as to make the too sweeping assertion that eight-tenths of cases of damaged tubes and ovaries can be cured without operation. This opinion somewhat modified was sustained by several physicians who took part in the discussion at the International Congress of Gynecologists, held two years ago at Brussels.

The possibility of a closed-up oviduct regaining its bore is warmly disputed, yet it is a well-known fact that solid uterine fibroids of several pounds weight have been known to spontaneously disappear through retrogressive metamorphosis. At a meeting of the Obstetrical Society of London, held June 7, 1893, Doran and others referred to forty such cases, and I myself have met with three analogous ones. So, also, will firm and extensive adhesions vanish away. Why, then, may not the thin tubal barriers and septa of inflammatory origin also break down and melt away. On the other hand, great disorganization of the ovaries is not incompatible with conception and pregnancy, for it appears that a very small amount of ovarian stroma goes a great way. Atlee reports two cases in which one ovary having been removed the other became so cystic as to need *repeated tappings*, yet each woman not only menstruated, but conceived and gave birth to a child.[2] In one of these cases, an ovary having been removed many years previously, the other one becoming cystic was tapped twice before conception, twice before delivery, seven times afterwards, and was then extirpated. A number of years ago I had a case of intraligamentary cyst of the right ovary. After its removal, which was attended with much difficulty and with much loss of blood, the left tube and ovary were found vitally attached to the pelvic wall and to the surrounding viscera. In view of the shock under which my patient was laboring, and of the dangerous character of these adhesions, I did not dare to detach or remove this appendage. Yet not many months later this lady, who hitherto had been sterile, conceived and bore a healthy child. Dr. B. F. Baer has had a still more remarkable experience. In his case the womb and both appendages being firmly bound down by adhesions, he, "by great effort," released the womb, tore the left ovary

[1] Transactions of the American Gynecological Society, 1893, pp. 345 and 346.
[2] Atlee, Ovarian Tumors, pp. 38 and 39.

and tube "piecemeal" from their position and ligated their "shreddy pedicle." "The right appendages were found in an almost similarly diseased condition, and, when they were dissected loose, they were also in shreds, the tube having been torn off about two inches from the uterus."[1] Dr. Baer urged their removal, but he was not permitted to do so by a physician present, who was the brother of the patient, and had promised his sister that only one appendage should be removed. Fifteen months later the woman give birth to a child at full term. To cap the climax, Robertson[2] mentions a marvellous case in point. He extirpated both the damaged ovaries from one of his patients, yet she afterwards conceived and gave birth to a child. His explanation is that he must have left unwittingly a scrap of healthy ovarian tissue in one of the stumps. This hypothesis is unquestionably correct so far as it goes, but it does not cover the insemination of the ovum and its descent into the womb, which can be explained only on the supposition that the lumen of one of the oviducts had reopened at the point where it had been sealed up by the adhesive inflammation set up by the ligature.

But supposing simple therapeutic measures fail, or that the use of the curette and of uterine drainage are not followed by relief and the surgeon is driven to surgical interference, must he, after breaking up the adhesions, always extirpate the now free uterine appendages? Many surgeons contend not only that the diseased appendage should be removed, but also that both appendages should be extirpated, even if one alone is damaged. This advice is given on the ground that the healthy one is liable in its turn to become affected. My own course under such circumstances would be never to remove the healthy appendage unless the menopause had been already established, or unless there existed a good reason for hastening it on, such as the presence of a uterine fibroid or of uterine disease or the insanity of the patient, making it undesirable for her to have offspring. On the other hand, should both ovaries be intrinsically diseased, and their tubes contain much pus, I should always remove both uterine appendages in their totality, no matter what the age of the patient might be. Generally, however, the pus is limited to the tubes, and in that case one ovary, barring its adhesions, which, of course, must be broken, is healthy enough to be left behind. In such a case the tube alone, if possible, should be removed, and not the healthy ovary or the healthy ovaries, if both happen to be sound. Nor have I ever found it needful to remove the womb on account of disease of its adnexa. Some of my most notable cures have been in cases in which the tubes were so rotten

[1] Annals of Gynecology and Pediatry, January, 1894, p. 232.
[2] British Medical Journal, September 27, 1890, p. 722.

that they were either pinched off close to the womb or else were removed by a wedge-shaped incision in the womb itself, the uterine wound either being closed by suture or seared by the actual cautery.

Further, rather than wholly remove all ovarian stroma, I should try in such cases, unless contraindicated, to leave behind at least a small fragment. For in several of my cases in which a piece of an ovary not larger than a bean was left behind not any menstrual or sexual changes whatever took place in the women. Should the uterine appendages be merely adherent, and not intrinsically diseased to any extent, I should, as a rule, during active menstrual life, release them, and perhaps extirpate the worse of the two, but not both of them. Such methods of conservative surgery will be occasionally rewarded by the maintenance of fertility. Polk, McMonagen,[1] Schroeder, Martin, and others have published cases in which, after a mere fragment of an ovary had been spared, and, indeed, after resection of the oviducts, conception and parturition took place.

The aim of modern surgery is conservation. Limbs, members, and organs are now saved which formerly would have been sacrificed. This is its glory, and this has been brought about by antisepsis. When but a few years ago gynecology was weaned from its obstetric nurses it threw off its swaddling clothes and marched abreast of its sister sciences. But antisepsis by the glamour of success has so dazzled modern gynecology as to make it a spoiler rather than a conservator. Reform is here needed. This reform does not imply a return to the expectant therapeutics of our forefathers,—"ancestral gynecology," as Chéron scornfully calls it. It signifies conservative gynecology,—a golden mean between the let-alone methods of the old school and the too hasty and too radical interference of the new school.

Powders for Dilatation of the Stomach.

Dujardin-Beaumetz speaks highly of the following combination in dilatation of the stomach :

℞ Benzo. naphthol.
Bismuth. salicyl.
Magnesiæ . . . . . āā gr. clv.
Misce et divide in pulveres xxx.
Sig.—One to three powders every morning.

—*Jour. de Méd. de Paris.*

[1] American Journal of Obstetrics, December, 1893, p. 807; Transactions of American Gynecological Society, 1893, pp. 175 and 457.

THE INADEQUACY OF THE MORBID CHANGES FOUND POST-MORTEM TO EXPLAIN THE MANIFESTATIONS OF INSANITY.

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The study of the pathology of insanity has shared in the impetus given to general pathological research in recent years, and much brilliant work has been done in demonstrating the morbid changes found in the brain in those suffering from insanity. On this account the hope has arisen that the search for a morbid anatomical entity to explain the various manifestations of perverted cerebral functioning would be crowned with success. Unfortunately, the fact has been lost sight of that the study of insanity does not stand on the same plane as the study of bodily disease, and, besides, the effort is being made to establish its pathology before its natural history is thoroughly understood.

Until within the last twenty years all the energies of those engaged in the care of the insane have been directed towards the study of the problems of amelioration of their condition, their proper housing and care, and the disciplinary necessities resulting from their aggregation in large numbers. In public institutions the medical staff was and is small, their time taken up with the treatment of the intercurrent bodily ailments of the patients and the supervision of their personal welfare. Again, among the laity, and to a great extent by the profession at large, insanity has been looked upon as a crime, or, at best, as a misfortune hurtfully influencing the social status of the family in which it occurred. When insanity developed in an individual, the family and, as a rule, the family physician failed to recognize it as such, until some overt act or manifestation of violence made the patient obnoxious or dangerous to those around him. Then he was either carefully secluded from observation or secretly hurried off to an asylum, the doctor glad to get rid of a case he did not understand and could do nothing for, the family once more breathing freely, because they could now announce to their friends that the patient had gone away for change of scene and rest. There was no effort on the part of the general practitioner to study carefully the early manifestations of the disease, and the asylum physician was consequently debarred from this information, even when he made an effort to get it. There was no systematic study of the earlier manifestations of insanity by the profession at large, consequently there was no stimulus to the asylum physician to make a systematic study of the later manifestations of the

disease, especially when his time was already so onerously taken up with the details of the personal and domestic needs of the patients committed to his care. However, with the development of specialism in medicine, and particularly the special study of nervous disease, physicians were led to a more careful study of insanity, especially in its objective aspects. Along with the rapid strides made in the study of the pathological anatomy of the nervous system, and the successful localization of the lesions producing the different motor and sensory manifestations of nervous disease, has gone the belief that lesions producing insanity may also be defined and localized. Here is where I believe the error has been committed. Starting with the assumption that the natural history of mental perversion stood on the same plane with that of general somatic disease, and losing sight of the fact that we are dealing not with a tangible entity, but with the manifestations of perverted function having no tangible material qualities, and, furthermore, differing from each other in detail as widely as do the natural characteristics and environment of the individual in whom they are manifested.

There is no abstract difference between the conduct of the sane and the insane. The difference lies in the motives which actuate the conduct and the loss of control of the activities which are manifested in conduct. The function of the activities of the organism is to conserve the welfare of the individual by adaptation to his environment, the final object being the preservation of the individual, his development, and the reproduction of the species. Biology teaches us that the only difference between the life history of the ameba and man lies in the number and complexity of the activities involved. Chemistry, that the difference between the protoplasm of the ameba and the cortical brain-cell lies in the proportion of its constituent elements and the complexity of their combination. Physiology, that their activities are represented in the assimilation of nutriment and the elimination of waste, the result in both being the manifestation of motion, differing in complexity as does their constitution. Evolution traces the relation between the simplest and most complex organism. The highest development of organic life represents the most perfect adaptation to environment, as well as the greatest complexity of the processes involved.

It follows as a corollary to this that capacity for continued adaptation to environment depends upon integrity of structure. So far the analogy between the different portions of the organism and the laws which govern their functional activity obtains; but when we come to consider that the nervous system is concerned in the controlling of the activities of the rest of the organism, and the direction of the sum

of these activities in the maintenance of the individual, the analogy no longer obtains; and when we further consider that the most highly-developed portion of the nervous system has another function in the cognition of the ever-varying conditions in the environment of the individual and their relation, so as to direct the somatic activities involved to best meet the changes in the environment, the wide difference in and the great complexity of the processes involved becomes apparent. To my way of thinking, it is this function of the nervous system we have to deal with in the study of insanity. As this function is one which, although based on organic activities, is so general and relative in its nature and so complex in its constituent elements, of necessity it cannot be localized. Besides, the external source and ever-varying nature of the stimuli producing its manifestations, make its perversion possible through the imperfect transmission or reception of these stimuli, consequently giving rise to perverted cerebral functioning without disease in the cortex itself. Let us see how far morbid anatomy can aid us in the study and wherein it fails to guide us to a complete understanding of what is constituted in perverted cerebral functioning.

Of the 24 cases included in this study, 13 were women and 11 men. Six women and one man were recent cases,—that is, had been insane less than one year. Two were epileptics, and the balance represented various stages of terminal dementia. Of the recent cases I append three, giving a synopsis of the clinical history and a record of the post-mortem findings, because their details bear an intimate relation to the argument. I append the record of two of the chronic cases also, illustrating the appearance of the brain and its membranes where the cause of death had been intercurrent disease. The first two belong to a series of cases of delirious mania, seven in number, which were admitted to the asylum during a period of three months last spring. All of them died, but these two were the only ones in which a post-mortem examination was obtained.

A. S., born in Finland; aged 32 years; married and a farmer's wife; no children; was admitted to the asylum January 23, 1892. No history of her family could be obtained. She has always been emotional and easily excited, but since the death of her sister, two months ago, she has been more than usually emotional and the subject of religious enthusiasm. Within two weeks of her admission her excitement grew into frenzy. She was in a condition of acute delirious mania when admitted: noisy, obstreperous, and pugnacious, her lips and tongue dry and fissured, her teeth covered with sordes. She talked continuously. Her condition precluded a careful physical examination. She rapidly became exhausted, and died eleven days after admission. Whole duration of attack, twenty-five days.

Autopsy forty-eight hours after death. Body well nourished; rigor mortis had almost disappeared; cadaveric lividity well marked on back and neck. On removing the calvarium the bone was found to be of usual thickness, the diploë was present, but the sutures had disappeared. The dura was thickened and its vessels deeply congested. It was adherent to the pia over the vertex, and the pia was thickened and adherent over the anterior and middle surface of the convexity of the cerebrum. The thickening of the pia was most marked at the base, and there was intense recent congestion over the lateral and basal portions of the cerebral lobes. The convolutions in the motor area were unusually well developed, while the anterior and occipital lobes were small and undeveloped. The cortex was pale, the brain-substance firm. The sinuses at the base of the skull were engorged. A small clot, the size of a B.B. shot, was found in the pia, resting in the anterior portion of the basilar groove of the pons. The lateral ventricles contained a considerable quantity of straw-colored fluid. The floor of the fourth ventricle was enlarged apparently and its surface roughened. The right optic thalamus was larger than the left, and the vessels of both were injected. The cerebellum was small and its vessels injected. The examination did not extend any further.

Mrs. E. C., born in Minnesota; aged 27 years; married, and has four children. She found out about three years ago that her husband had another wife living when he married her. She has been more or less disturbed mentally ever since. A paternal grand-aunt and cousin were insane. About a week before admission she developed religious exaltation, which became more and more violent until she was brought to the institution. During the whole time she was in residence she was violent, destructive, and pugnacious, constantly talking to herself and not sleeping, except under the influence of hypnotics. She had to be catheterized and her bowels moved by enemata. She was fed mechanically. After the first week she became quieter and took some food voluntarily; but she soon became more violent, her pulse became more rapid and feeble, and early in the morning of July 12, two weeks after admission, she was found dead, her limbs rigid and distorted.

Autopsy eleven hours after death. No rigor mortis; cadaveric lividity in all dependent parts, especially marked about the shoulders and neck; body well nourished. Disorganization had already begun and there was a sanious discharge from the mouth and nose. On turning back the scalp extensive extravasation of blood was found around the occipital protuberance. The dura was thickened and its vessels engorged. The pia was thickened and opaque. Effusion under the pia was pretty general over the entire convexity of the brain, but was especially marked over the anterior lobe of the left hemisphere. The

entire brain-mass was intensely injected and the puncta vasculosa well marked. Blood oozed from the brain-substance on section. The lateral ventricles contained a considerable quantity of straw-colored fluid. There was a small growth, the size of a split pea, in the velum interpositum.

Both lungs were somewhat congested, but without any signs of consolidation. There were no pleural adhesions. The pericardial sac contained about one ounce of straw-colored fluid. Both auricles were full of dark clotted blood. The aortic valves were competent. A large white clot was found in the right auricle, extending into the ventricle and thence into the pulmonary artery. None of the abdominal organs were diseased.

Mrs. S. E.; admitted February 20, 1892; born in Sweden and but lately come to this country; aged 27 years; married, and six months pregnant with her first child. No family history could be obtained. Mental disturbance was first manifested about January 1, 1892, by self-depreciation and attempts at suicide. When admitted she could not speak above a whisper on account of destructive disease of the laryngeal mucous membrane, produced by drinking lye with suicidal intent. She was depressed and very much agitated, believing that her husband no longer cared for her and that she was in the way. On this account she wanted to kill herself. Later she heard voices commanding her to take her life, and she insisted that she must do so. On March 7 she was noted to have some elevation of temperature, with hurried respiration. Examination disclosed the end of a darning-needle protruding in the sixth interspace on the left side, two inches outside of the nipple-line. The needle advanced and receded with each impulse of the heart. The needle was found to be four inches long, and the patient said that she had thrust it into her side two days before. The next day she miscarried. In the morning her temperature was 103° F.; pulse 140; but after the miscarriage the temperature fell to normal, and she appeared to be very much better. Her respiration did not improve, however, and the next day her temperature went up to 104° F., the heart's action became labored and violent, and the respiration became "Cheyne-Stokes" in character. During the night she passed into a comatose condition and died the next morning.

Autopsy forty-eight hours after death. Rigor mortis complete; cadaveric lividity well marked in all dependent parts; body emaciated; purpuric spots on arms, chest, and legs. There was a punctured wound, made by the darning-needle, occupying a position two inches to the left of the nipple-line and in the sixth interspace. On removing the scalp, a small abscess was found in the aponeurosis of the occipito-frontalis muscle, on the left side, an inch below the sagittal, and two

inches posterior o the coronal suture. On removal of the calvarium there was an escape of a large amount of blood from the torn vessels of the dura. The sinuses of the dura were full of fluid blood. The dura was injected and adherent to the bone over the vertex. The pia was intensely injected and adherent to the dura over the superior surface of the paracentral lobule on each side. The injection of the pia was most marked at the base and in the Sylvian fissures. The convexity of the cerebrum presented a healthy appearance. The fissure of Rolando was well defined on the right side, incomplete on the left. The anterior limb of the Sylvian fissure was ill defined on the left side. The separation between the parietal and temporal lobes, on both sides, was incomplete. The gyri in the longitudinal fissure were unusually well defined, the gyrus fornicatus on the left side being most distinct. The vessels in the ependyma in the lateral ventricles were very much injected. The puncta were well marked and the cortex was pinkish-gray in color. In the white matter of the precuneus, anteriorly, there was a dark clot, about the size of a split pea. The cerebellum was intensely congested. The structural contour of the brain was unusually well preserved, and the topographical arrangement and relationship of the different anatomical subdivisions was typical of the normal brain.

On opening the chest a fibrinous pleurisy was found, involving the pulmonary pleura over the lateral aspect of the left lung. The needle referred to above had passsed through the chest-wall into the abdominal cavity, along the anterior surface of the greater curvature of the stomach, making two abrasions of its peritoneal coat on its way inward and upward, finally piercing the diaphragm, transfixing the apex of the heart, and just entering the cavity of the left ventricle. The process of repair had already begun in the heart-muscle. In the right auricle and extending through the right ventricle into the pulmonary artery was a large white clot. A large white clot was also found in the left ventricle. These clots were so far organized as to have blood-vessels on their surface. The uterus was healthy and firmly contracted. The examination was, unfortunately, stopped at this point by the arrival of the undertaker.

It is worthy of note, in the two cases of delirious mania, that the history of the onset of the attack was practically the same, as was also the history of mental instability. In all of the seven cases referred to the history indicated congenital nervous instability, although a definite history of heredity was obtained in but three of them. The symptoms and course of the attack were also similar. However, a reference to the post-mortem findings shows that in one essential particular the condition of the brain was exactly the opposite. The cortex in the one case being pale, in the other congested; and this dissimilarity I

have several times found in other cases. The third case, showing exactly the opposite mental condition, presented very similar post-mortem findings to the second case, the only difference being the degree of congestion of the cortex. It has been my observation that in cases of acute depression, furnishing opportunities for post-mortem examination, the changes in the cortex and membranes are never so advanced or so great as in cases of acute excitement. Another point I want to call attention to is the marked similarity between the conditions found in these cases and those found in meningitis *without* mental perversion.

The two following cases are given as types illustrating the changes found in the brain and other organs in subjects of chronic insanity dying of intercurrent disease.

Mrs. B. M., 38 years old ; married, and has one child ; is a farmer's wife, and was born in Finland. No history of her family or record of her condition before admission could be obtained. Her condition on admission was one of boisterous excitement with homicidal impulse towards her family. (Her mother was admitted to the asylum soon after the daughter, and in a similar condition.) Her physical health was good ; she degenerated very rapidly, and was noisy, destructive, and filthy during the whole time of her residence. For a month previous to her death she gradually lost flesh and presented a cachectic appearance. Her physical condition was apparently good, however, and she was very vigorous. At noon, on October 7, while being fed by a nurse, she suddenly fell in a convulsion and died in a few minutes. Before death her mouth and pharynx were full of food, but no symptoms of asphyxia were present. The heart stopped beating before respiration ceased. Whole duration of disease, eight years.

Autopsy three hours after death. Rigor mortis beginning to develop ; body emaciated, but muscular development good, especially in the arms ; face, hands, and forearms cyanosed ; the rest of the body pale. There were no external signs of injury or disease ; there was no adipose tissue under the scalp. The external surface of the skull was smooth and free from depressions. The sutures were apparent, especially the coronal. The internal surface of the bone and the grooves for the longitudinal sinus and blood-vessels well marked. There were three depressions, for Pacchionian bodies, on each side of the groove for the longitudinal sinus at the vertex. The external table was thickest ; the diploë was present. The bone was, as a whole, thin and pale. There was some fluid in the posterior fossa. The dura was not thickened, and its surfaces were smooth. The vessels of the dura were full of blood ; the longitudinal sinus was empty, but the lateral sinuses contained dark clots. There was fluid under the pia

over the convexity of the brain. The pia was slightly thickened along the vessels. The vessels were full of blood and their wall thickened. The vessels at the base were small and hard. The olfactory bulbs were white and atrophied. Nothing abnormal was found in the other cranial nerves. The convolutions of the convexity were flattened and their sulci gaping. The convolutions of the insula were well defined on the right side, but smaller and narrower on the left side. The convolutions of the motor area were much better developed than those in the anterior portion of the frontal lobes. The occipital lobes were disproportionately small, and their convolutions comparatively simple. There was a small quantity of fluid in the lateral ventricles. There were three small cysts in the ependyma over the optic thalamus on the left side. The velum interpositum was adherent above, but not thickened. The choroid plexuses were pale, but contained no cysts. There was fluid in the fourth ventricle. The Rolandic fissure on both sides extended to the Sylvian fissure. The cortex was thin and pale. The left pleural cavity was obliterated, but there were no adhesions on the right side. Nothing was found in the larynx. The esophagus was full of food. The right lung was healthy, the left hard at the apex and nodular; some of the nodules were breaking down. There was a small amount of fluid in the pericardial cavity. The heart was normal in size and appearance. The aortic valves were competent. The heart was full of fluid blood; its muscle was normal in thickness. The omentum was not diseased. The spleen was small, shrivelled, and hard. The liver was normal in size and appearance; it oozed venous blood on section. The gall-bladder was full, but its duct was patulous. The left kidney was small and deeply congested; its capsule was not adherent. The right kidney was larger, its capsule free, but its substance deeply congested also. The pyramids were well defined in both, but the cortex was thin. The stomach and intestines were free from disease. The descending colon was full of scybala. The bladder was empty. The uterus was small; the ovaries atrophied. There were no pelvic adhesions.

Mr. J. C., born in Bohemia; age 26 years; single, and a laborer; admitted to the hospital July 9, 1887. No family history obtained. Four years before admission both parents died suddenly. He was depressed by his loss and became the subject of morbid religiosity. From this time on there was steady mental reduction, and when admitted he was stupid and filthy in his habits. His physical condition was good. After admission he sank rapidly into dementia. On September 11, 1892, he had a chill; this was followed by consolidation of the upper lobe of the right lung, with the accompanying symptoms of acute lobar pneumonia. He failed rapidly, and died October 6.

Autopsy twenty-six hours after death. Rigor mortis present; cadaveric lividity in dependent parts; post-mortem staining over abdomen; body emaciated; muscular development poor; skin over right chest above nipple stained from an application of iodine; old brown scar over left tibia. No adipose tissue in scalp; scalp dense and tough; pericranium smooth and white; external surface of skull smooth and free from depressions; the grooves for the sinuses and veins well marked on the internal surface; skull thick, diploë present; external table thickest, internal table very thin. There was fluid in the subdural space. The dura was slightly thickened; its outer surface roughened; its vessels full of dark blood. There was a small dark clot in the longitudinal sinus. The lateral sinuses contained a small quantity of dark blood. The cerebro-spinal fluid was increased in quantity. The pia-arachnoid was thickened and opaque along the blood vessels and over the anterior lobes, where the membrane was pink and granular; over the rest of the convexity it was darker and quite smooth. The blood-vessels were injected, especially in the Sylvian fissures, and the blood-vessels at the base of the brain had slightly thickened walls. The convolutions of the convexity were not flattened, but the sulci gaped. The fissures of the motor area were well marked, and approximately alike on both sides. The lateral and fourth ventricles contained a small quantity of fluid. The ependyma of the lateral ventricle was thickened. The surface of the optic thalami had a corrugated appearance. There were cysts in the choroid plexuses, and the velum was thickened and opaque. The nuclei were pinkish in color, and their puncta well marked. The centrum ovale was softened; the puncta well marked. The white matter was pinkish in color; the cortex reddened. The cortex of the insula was thin, and the convolutions illy developed on both sides. The occipital lobes were firmer than the rest of the brain. The brain-mass was edematous. The substance of the pons and medulla was pinkish in color; the vessels injected. There were adhesions throughout the left pleural cavity; laterally they were recent. The upper lobe of the left lung was full of nodules anteriorly. There was an old cicatrix in the upper portion of the left lung posteriorly. There were adhesions in the right pleural cavity anteriorly, laterally, and posteriorly, the latter being the firmest. The adhesion anteriorly was recent. An old abscess was found in the upper part of the lower lobe posteriorly. There was another abscess in the apex posteriorly. The whole lung had undergone fibroid change, and there was a recent pneumonia in the apex. The bronchial glands were enlarged.

The pericardial cavity contained about two drachms of fluid. Its surfaces were smooth. The heart was normal in size. The aortic

valves were fairly competent. There was a soft dark clot in the left ventricle. A fibrous ridge at the base of the aortic valves, but the cusps were not thickened. There was a clot in the right auricle, extending into the ventricle. This clot was harder than the one on the left side. The heart-muscle was firm. The omentum was stained, very thin, and contained no fat. The spleen was normal in size and healthy in appearance. The liver was adherent to the diaphragm along its posterior border, large and pale. Its substance oozed blood on section. The left kidney was normal in size, its capsule adherent. The right kidney normal in size, its capsule adherent in spots. The cortex was thin in both, the pyramids well defined. There was no disease of the stomach or intestines. The bladder was partially full.

The chronic cases had existed in terminal dementia so long that their mental condition was comparatively uniform; showing only varying degrees of mental reduction, with a persistence in a modified form of the habits and beliefs, which had characterized the different forms of insanity they had manifested in the beginning of the outbreak. In none of them was there any distinctive change in the brain or membranes, but in most of them there was more or less well-marked thickening of the blood-vessel walls, especially marked at the base of the brain and in the Sylvian fissures. In the majority the dura and pia were thickened, but this thickening did not bear any relation to either the form or degree of mental disturbance present; indeed, in the two cases where it was most marked, the mental reduction was the least advanced. In several of the cases there were interesting lesions, which had given rise to perverted motor manifestations and paralysis before death, and in three cases a gross hemorrhage into the brain-substance had been the cause of death. However, these conditions were accidental, had existed only a short time before death, and in nowise influenced the mental condition or were related to it except in association. In all of the cases there were more or less grave organic changes in the thoracic and abdominal organs, especially of the lungs, liver, and kidneys. The only factor in these cases which, to my way of thinking, had any influence on the form or intensity of the mental aberration, was the degree of primary mental defect present in the individual, and to some extent its kind.

In none of the cases were all the organs healthy, and in most of them there was a varying degree of chronic disease of the lungs. This prevalence of lung affection, especially among the men, in whom it was most common, could be to a certain extent accounted for by the blood stasis present in cases of stuporous dementia, in connection with the habitually stooped position assumed in standing or sitting; also as some times having its origin in exposure resulting from habits of denu-

dation and wandering about unclothed at night. There were pleural adhesions in all the cases but one, and she, a woman 65 years of age, had been in the institution for nearly twenty-two years. In her case an enormous and rapidly-formed pleural effusion was the immediate cause of death. In only two of the women was there any chronic disease of the generative organs. In one a small fibroid growth had been removed from the uterus two years before she came to the institution. Her mental disturbance made its appearance soon afterwards and was preceded by menorrhagia. Within three months of her death, an enormous sessile intramural fibroid developed and the menorrhagia accompanying it was the immediate cause of death. The other case, a single woman past middle life, who showed no sign of disease while living, had cystic ovaries and three small extramural fibroids. Among the men, next in frequency to chronic fibroid change in the lungs, were similar changes in the liver. In at least half of the cases both these changes were combined. In one-fourth of the cases, chronic degenerative changes in the kidneys existed. The kidneys being enlarged or quite small, their capsules adherent, the cortex thin, and in some of them cysts varying in size and number. Tubercular phthisis was present in four of the cases, with varying degrees of destructive change in the lungs. These were all men. In one man there was an acute miliary tuberculosis affecting both lungs and peritoneum. One of the women also died of acute miliary tuberculosis soon after admission. She was a case of primary mental defect, with a history of what were called epileptic convulsions making their appearance coincident with the advent of puberty and continuing up to the time of her admission. Marked mental disturbance had made its appearance only a short time before admission, and she had no convulsions after coming to the hospital. She died three weeks after admission, and two days before death her temperature reached 105½° F., accompanied by most profuse sweating. Both the lungs and the peritoneum, as well as the membranes at the base of the brain, were involved. The appearance of the membranes was quite typical of tubercular meningitis and there was considerable effusion under them. The patient, a young Norwegian girl, 19 years old, was stupid and uncomplaining from the time of her admission until she died, although during the last forty-eight hours she was intensely restless. In all the cases except two the spleen was enlarged, and in these two it was very small, although there had been no symptoms to call attention to this organ during life. There were two cases where the lesions of syphilis were found, but they in nowise differed from the lesions found in cases where no mental aberration has existed. It is of interest to note the frequency of heart involvement in these cases, especially the presence of white clots, which were found in one-half of all the cases.

Valvular lesions were found in only two of the cases, however, and although arterio-sclerosis was present in all the chronic cases, the coronary arteries were involved in only two cases to any appreciable extent. In most of the cases the wall of the left ventricle was thickened, and in all of the cases where the patient died of exhaustion the muscle was softened. I think it worthy of consideration, also, that the changes found in these cases, even in the brain, in nowise differed from those found in cases where no mental disturbance had existed. Having no facilities for the purpose, a microscopic examination of the changes in the cortex was not made in the cases which form the basis of this paper; consequently I will refer to the carefully-detailed and accurate observations of W. Bevan Lewis as representing the sum of our present knowledge of the histological changes which are found in the brains of those who die while insane. In describing the process of atrophy of the brain-substance, after referring to the arrangement of the blood-vessels and the nature of the blood-supply to the cortex, the inter-dependence of the activity of the circulation and the activity of the nerve-cell, as well as the inter-dependence and association of function of different parts of the cortex, he says, "Keeping these facts in view, it becomes obvious that much obscurity naturally overshadows many pathological processes in the cortex cerebri, despite the prominence of the morbid changes presented. No one element of the tissue of the cortex can suffer materially, without rapidly disturbing the nutrient equilibrium consistent with the health of the territory to which it is attached; hence it often becomes a question whether changes observed in the nerve-cells are evidence of primary implications, or whether they are secondarily induced through a disturbance in the circulation of the district, or impairment of the lymphatic functions of the cortex, in a blood crasis, or other cause; or again, as in the medulla, whether a sclerotic change with atrophy of nerve-tubuli is primarily parenchymatous (originating in the nerve-element) or interstitial (spreading from the neuroglia to the latter). There is every reason to believe that in the nervous centres both parenchymatous and interstitial change may occur as the primary fact; that the nerve-cell, for instance, may be stamped with a morbid instability wholly independent of any *ab extra* agency, and this as an inherited or as an acquired condition; nor is it unreasonable to suppose that the changes in the nerve-cell in physiological senescence are *initiated* apart from any nutritive anomalies and blood-vascular changes, being simply the expression of the expiration of its fixed term of existence."

A further proof of the want of significance of these changes in explanation of mental perversion is found in the fact that in an individual dying insane, no matter whether the condition be one of violent delirium or profound depression, if the attack has been acute, identical

changes in the cortex and meninges will be presented; sometimes varying in their locality and extent, but never materially in their character. Again, there appears the implication that these may not stand in the relation of a causative factor to the mental perversion, and that the histological changes found do not result directly from the manifestations of mental perversion, but indirectly through impaired nutrition, and exhaustion following in the wake of the excessive motor activity accompanying the insanity and autointoxication resulting from impaired or inhibited somatic activity. A further fact, seldom referred to, but stated elsewhere by the writer in this relation, is the evidence furnished by primary and terminal dementia. Either of them may, and often do, proceed to a degree involving mental annihilation without interfering with the somatic activities, which are automatically performed, and yet, post-mortem, no distinctive histological changes be found. Whether mental activity is represented in the most unstable cells of the cortex independently, or whether, as I believe, it is represented synchronously with motor generative activity, and is the reflex of the association of all somatic activities, has not been demonstrated and may not be capable of demonstration, but the latter would seem to be the most reasonable assumption from the data we have, especially as it will most definitely explain the absence of distinctive changes in mental perversion, and the uniformity of change in associated mental and somatic impairment or destruction.

The first point to consider in the study of the pathology of insanity is that we have to deal with alteration not destruction of function. The activities involved are the same in amount and kind in both normal and abnormal mental functioning. In the one case they represent a response to external stimuli, the effect of which is habitual, while in the other they are excited by centrifugally-generated stimuli, more or less out of accord with external conditions.

Were all individuals physically alike, and subject to the same environmental conditions, it might be possible to formulate laws governing the production of insanity upon like influences in the environment, and to predicate the form in which insanity will be manifested upon the physical disturbance preceding or accompanying the insanity. That this is impossible, however, is apparent; but it seems, to my way of thinking, that it is in this direction we must look for light to guide us in the study of aberrant mental functioning, always bearing in mind that the personal equation, as affected by heredity and environment, will vitiate any specific law we may attempt to frame, while the fact that the mental activity is of necessity but the reflection of the somatic activity, will, at least with our present knowledge of physiology and means of studying morbid changes in the nervous system, render

attempts at localization futile, so far at least as teleological significance is concerned. However, there is nothing to prevent us from studying the physical basis for the manifestations of insanity, in the same way that we study functional perversion in any other organ, realizing the rational and reciprocal dependence of all the organic activities upon each other, and the possibility of more or less vicarious assumption of function by different parts of the cortical mass, as we find it in the other organs of the body.

In the study of disease in general, no matter how accurately we may have located the specific cause, or how definitely we have demonstrated the actual *materies morbi*, there remains one essential factor, and sometimes the most important one, which is the final element in our prognosis and of the utmost importance with relation to the treatment of the diseased condition, and that is the previous integrity of the diseased organ and the constitution of the individual. Without calling attention to the implication which this statement makes apparent with regard to the other functions of the organism, let us proceed directly to its application to the study of perverted cerebral functioning.

Physiology teaches us that the physical basis of cerebral functioning is summed up in genetic and destructive metabolism, with the supplementary necessity for a free supply of nutritive material and complete elimination of the products of destructive change; also that there is constituted in the process certain rearrangements of the elements of the cell, with the liberation of energy, followed by the more or less perfect reconstitution of the cell in the more highly organized parts of the cortical mass, while in the unstable elements of the lower organized and more homogeneous cells the change is that of decomposition with an immensely larger liberation of energy. It is a fair presumption, also, that there is a chemical difference in the molecular composition of the different kinds of cortical cells, resulting in a greater stability of the more highly organized; hence the incident forces affecting them produce isomeric change rather than the decomposition which takes place in the more homogeneous and unstable cells. Supposing the tendency towards isomeric change or decomposition in the cortical cell to have a certain normal plane in the average individual, a certain degree of incident force would be necessary to bring this about; and supposing, further, its potential capacity for reconstitution to vary between more or less definite extremes, we have only to imagine the individual to have an hereditary or acquired tendency to be affected to an excessive degree by this incident force, or that the incident force be unusually increased or abnormally persistent, to see how this isomeric change or decomposition in the constituents of the cell will be influenced, and its capacity for reconstitution lessened, either temporarily,

if the reduction of potentiality is slight, or permanently if the potentiality is greatly less than the normal or the incident force extreme. Now, it follows that if these adverse conditions increase beyond a certain point or persist for a great length of time the tendency will be towards abeyance of isomeric change and a reduction of the plane of the cell's cavity, or it may cease altogether, and the change in the cell become that of decomposition, thus reducing the highly organized cells to the type of the lowly organized ones, and finally bringing about their entire destruction. The changes actually found to take place in the physical appearance of cortical cells substantiates this conclusion, showing in the structure of the cell and the morphological differentiation of its constituents the analogue of the chemical changes in the altered physical appearance of the cell. Furthermore, when we consider that under the influence of the general disturbance present in insanity, with the intensification or abeyance of the organic cavities associated with the mental disturbance, it will be readily understood how not only the nutritive and eliminative changes in the brain will be interfered with, but the functioning of the rest of the organism as well, so that the work done by each organ will be incomplete and aberrant in form. Thus the general and local conditions, acting and reacting on one another, prevent the re-establishment of normal functional activity in the brain, and bring about the persistence of the conditions, primarily dependent upon some temporarily acting cause, which result in the upsetting of an unstable nervous organization. To go into the mechanism of the changes involved in perverted cerebral functioning would extend this paper indefinitely and confuse the argument. Suffice it to say, that we have to consider the influence of general changes in the organism in determining mental disturbance, the reaction of the perverted functioning of the brain on the general organism, the implication of certain portions of the general nervous system by destructive changes, and, finally, the hereditary or acquired imperfections in the structure of the general nervous system.

Putting this last element first in the order of consideration, we must remember that, although not yet demonstrable, it is highly probable that there can be a chemical imperfection of structure, even where there is no morphological imperfection apparent, and that this imperfection or incompleteness may operate to produce an abnormal tendency to decomposition following slight incident force, or, expressing it in physiological terms, a tendency to react excessively to slight stimuli. Applying this definition to the nervous system, we see it manifested in an exalted but indefinite and non-persistent mental and motor activity. Examples illustrating this contention are easily drawn from common observation, varying from the more ordinary manifestations of mental

instability to those present in hysteria or paranoia, and yet no morphological change be found in the brain structure. Again, hereditary or acquired conditions may determine a defect or impeding of development, which will show itself as a tendency in an unstable nervous organization to break down in certain directions, whereas integrity of structure and normal functioning may persist throughout in other directions.

We have next to consider that through disease or even disturbance of circulation in the conducting tracts of the nervous system, either in the path of sensory and motor impulses or in some of the subsidiary centres, perverted impressions may be carried to the cortex; or, on account of changes in the fibres of association in the centrum ovale, or even in the anastomosing fibrils of the cortical cells, there may be caused imperfect relation of afferent impulses with incoördinate or excessive motor discharge. Such aberrations of function occur constantly in the sane under the influence of fatigue, mental strain, or bodily disease. How easy is it, then, to account for their exaggeration and persistence, if they take place in a nervous system which is primarily defective.

Lastly, we have to consider the influence which impaired nutrition, occurring as the result of exhaustion of vitality either through overwork or bodily disease, may in the presence of the factors just described have in determining an outbreak of insanity. Here, again, a little reflection will show that the most profound exhaustion from overwork or bodily disease may occur without producing insanity in the ordinary individual. What, then, is the necessary factor? It seems to me obvious that it must be an unstable brain. Again, perverted function alone in the somatic activities, without determinable organic change, may so interfere with elimination as to cause autointoxication, producing an outbreak of insanity. The influence of mental disturbance in affecting bodily conditions is well shown by the change from emaciation, exhaustion, indigestion, and constipation associated with states of exaltation or depression to the vigorous reestablishment of all the vegetative functions when dementia supervenes, and I have seen this change take place in a month without any change in the form or degree of excitement and without medication.

It would seem to be a fair inference, if the experience of others bears out the deductions I have made, that the greatest advantage to be gained from post-mortem studies in the insane lies in the discovery of the influence which diseased conditions in the different organs of the body have in the determination of insanity in those predisposed, even where these conditions have no appreciable influence on the general health of the individual, but show their effect principally in the production of autoinfection, which in its turn determines the temporary or permanent breakdown of an unstable nervous organization.

CORRECTION OF RACHITIC DEFORMITIES AND OF THE DEFORMITIES FOLLOWING INFANTILE AND SPASTIC PARALYSES.[1]

By DeForest Willard, M.D.,
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(1) Correction of Rachitic Deformities.

The correction of simple out-bowing of the legs in rachitic children before the bones are solidified is easily made by pressure from a properly-applied apparatus. The long out-bowing accompanied by out-knee can also be remedied by mechanical measures. In a few instances where the parties cannot or will not attend to the adjustment of appliances, forcible manual straightening of the tibia and fibula over a fulcrum is advisable, even if a simple or a green-stick fracture is produced.

The epiphyseal line should be carefully guarded against injury when the osteoclast is used. Osteotomy is frequently necessary in extreme cases of out-bowing, especially in large children or in adults.

Anterior curvature of the tibia and fibula rarely yields to apparatus. Manual fracture over a hard fulcrum, or osteoclasis, or preferably osteotomy is advisable. Wedge-shaped osteotomy is seldom necessary except in extreme cases, as even a wide intervening posterior gap can be filled up by callus, and the cuneiform operation is more liable to be followed by suppuration.

For in-knee or out-knee, osteoclasis is inadvisable; but osteotomy, especially above the condyle of the femur, is safe and satisfactory, and is usually sufficient to remove the deformity, except where there is great angularity, in which case a second osteotomy may be performed below the tibial tubercle.

Curvature of the femur, unless it is great, need not be operated upon, as it interferes but little with the walking powers, and is simply a matter of appearance.

(2) Treatment of Deformities following Infantile and Spastic Paralyses.

(1) Prevention of deformity by means of apparatus and other measures is exceedingly important.

(2) When contractures have occurred, the employment of surgical measures should precede the application of mechanical measures. To attempt to overcome these deformities by mechanical means alone is to needlessly inflict great pain. It consumes much time, and the final result is no better than by the speedier and less troublesome plan.

[1] Abstracts of papers read before the American Orthopedic Association, at Washington, D.C., May 31, 1894.

(3) Myotomy and tenotomy, either subcutaneous or open, are perfectly safe operations. They are usually remarkably effective, and the muscles are placed in a better condition for action than they were before the operation.

(4) In contractures at the hip, free open division is usually preferable; at the knee, subcutaneous section can frequently be performed; but when fascial contractions occurring in the central popliteal region are to be overcome, open incision is necessary. At the foot, subcutaneous division is usually sufficient. Tarsectomy is seldom necessary. Fasciotomy is frequently required.

(5) Forcible straightening following division is usually necessary. Rectification should be complete at the time of operation, and all contracted tissues should be divided.

(6) In spastic paralysis, lengthening of the tendons by tenotomy assists in restoring muscular equilibrium, and consequently secures better subsequent locomotion.

(7) Free section of the adductors is often necessary.

(8) The best subsequent dressing for maintaining abduction while the patient is in bed is the application of a rigid gypsum dressing to the knee, the legs being then fastened in a widely-separated position.

(9) Subsequent to operation for either form of paralysis, mechanical appliances with lock- or stop-joints are frequently temporarily needed, and artificial support by wheeled crutch or other measures will assist in restoring muscular power. Locomotion is the best form of gymnastics.

A Remarkable Case of Tuberculous Peritonitis in a Woman.

Siredey relates a remarkable case which he observed many years ago, before abdominal section was so generally performed. A young woman had tuberculous peritonitis, and also suffered from umbilical hernia. Whenever she coughed, the fluid effusion in the peritoneum rose and distended the thin hernial sac. One day the sac gave way, and the patient was soaked in the peritoneal fluid which escaped. For six weeks the fluid escaped, characteristic fibrinous masses also coming away. Carbolic-acid dressings were kept over the wound. The patient was in a general ward, where there were cases of facial erysipelas. Nevertheless, all went well, the fistula closed at the end of six weeks, and the abdomen then appeared normal. The patient left the hospital in excellent health.—*Bull. et Mém. de la Soc. Méd. des Hôp. de Paris.*

FAILURE OF AN ATTEMPT TO MODIFY THE COLOR OF BACILLUS PRODIGIOSUS BY COLORED LIGHT.

By Joseph McFarland, M.D.,

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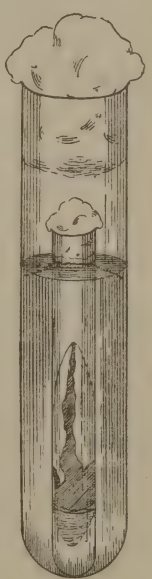
The observations of numerous bacteriologists have recently shown that the blue and purple rays of light have a slightly deleterious effect upon the development of cultures of bacteria exposed to them. Although this fact is generally known, the experimenters who have established it do not mention whether or not these same colors have a modifying effect upon the color-production of the chromogenic bacteria. It was to determine this question that the present research was made. The principal facts about the chromogenesis of the bacillus prodigiosus being fairly well known, and its color being a very intense one, it was selected for the experiment.

The bacillus prodigiosus produces, by its growth, a brilliant red pigment, which has a distinct metallic lustre comparable to fuchsin. In fresh cultures upon agar-agar the pigment is purplish, but becomes more distinctly red as the age of the culture increases. The pigment, which is probably the result of a combination of some secretion of the bacterium with some substance in the culture medium, is deposited in the form of granules about and sometimes within the bacilli, but only in such parts of the culture as come in contact with the oxygen.



The color is only produced in the presence of oxygen, and in liquid cultures is always first seen upon the surface, subsequently sinking to the bottom and collecting in a powdery form. It is insoluble in water, hence is not evenly distributed throughout the culture medium. The pigment is soluble in alcohol, chloroform, and ether, and is destroyed by acids. When thus destroyed by acids, sometimes the influence of strong alkalies will bring back the lost color. At a temperature higher than 37° C. the color is produced with slowness, and at 40° C.—a temperature which interferes somewhat with the growth of the organism—it is scarcely produced at all, and is entirely lost in the third generation. The color-production can also be checked and finally lost by cultivation upon acid media.

Light seems to have no effect upon the chromogenesis, the color produced in the dark being just as intense as that produced in the light.

EXPERIMENTS.—*Series I.* This experiment seemed to promise very little, and was made without much hope of a brilliant result. Ten fresh agar-agar cultures of bacillus prodigiosus were inoculated. Each tube was fitted with a small triangular wire frame, and then submerged in a colored solution contained in a larger tube. The colored solution extended upward to the cotton plug of the culture-tube and excluded all light except that which passed through the former.

The colored solutions were made by adding the stock-staining media of the laboratory to water, and comprised the following:

Picric acid (sat. alcoholic solution) . . .	1	ccm.	to	100	ccm.	of	water.
Eosin (sat. alcoholic solution)	1	"	"	100	"	"	
Aurantia (sat. aqueous solution)	1	"	"	100	"	"	
Lugol's solution	1	"	"	100	"	"	
Magenta (sat. aqueous solution)	1	"	"	100	"	"	
Fuchsin (sat. alcoholic solution)	1	"	"	100	"	"	
Methyl green (sat. aqueous solution) . .	1	"	"	100	"	"	
Methyl blue (sat. alcoholic solution) . .	1	"	"	100	"	"	
Dahlia (sat. aqueous solution)	1	"	"	100	"	"	
Hematoxylon (Delafield's)	1	"	"	100	"	"	

These solutions gave nearly all the colors of the spectrum, and formed about as great a variety as one cared to work with.

In ten days the tubes, which had been allowed to stand upon the laboratory table, subject to the same influences of light and heat, were examined and their colors compared. No difference could be detected.

Keeping the tubes in their proper relation to the colors in which they had grown, a fresh agar-agar tube was inoculated from each and immersed in the same color as that in which the parent had grown. In this way the second generation was allowed to remain undisturbed for about ten days, then examined. Again no difference could be detected in the colors shown by the ten tubes, nor did any of them differ from the color produced under normal conditions.

In the same manner a third generation was planted and allowed to grow, and when these showed no variation from the normal the experiment was discontinued.

Series II. I found that after a perfectly colorless culture of the organism under consideration was produced by the exposure of successive generations to the temperature of 40° C. an agar-agar culture inoculated from it; when subjected to the room temperature would revert to the normal type and produce its pigment like an unmodified individual.

It occurred to me that if tubes should be inoculated from such a colorless culture, and then subjected to the influence of colored light, the return of the color, which is slow, might present distinct modifications.

The experiment was conducted as before. Ten agar-agar tubes were inoculated from a perfectly colorless culture growing at 40° C. These were immersed in the same colored solutions used in the preceding experiment, and exposed to the same conditions as the others. The growth was slower than that of the bacillus prodigiosus usually is, but at the end of ten days was distinct and healthy. At the end of the second week the tubes were removed and compared. No modifications of color could be detected, except that the culture immersed in the hematoxylon, having grown a little less than the others,—to be expected as the natural result of the color of the solution,—was a trifle more purple. As the growth is always a little more purple when young than when old, this purple color seemed to depend upon the retardation of growth.

The result of the experiments of the first series was what was expected, but I must confess to some disappointment when the second series turned out as they did. These experiments serve to show that while the habits of bacteria can be modified somewhat by changing their environment, they, like higher plants and animals, can be changed only within certain limits; and, when allowed to return to the old conditions of life, speedily revert to the primitive type.

CYSTIC DEGENERATION OF THE CHORIONIC VILLI.

By Catherine M. Kennedy, M.D.,

and

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Having lately had a very interesting case of a rare disease of pregnancy, cystic degeneration of the chorionic villi, we thought a brief account of it might prove interesting to the members of our profession. A short sketch of this disease, which has been described under various names, such as uterine hydatids, cystic degeneration of the ovum, hydatiform mole, vesicular mole, etc., will aid in a clearer understanding of the case in question.

The chorion is the outermost of the fetal membranes, and is formed

from the external layer of the non-germinal epiblast. Its inner surface is smooth and glossy, while its external layer, fronting the maternal decidua, is of a shaggy appearance, due to the presence of the villi. These villi are at first absolutely non-vascular, and while in this primitive condition the ovum is nourished by endosmotic absorption from the mucous membrane of the uterus. Some twelve days after conception, when the blastodermic membrane is formed, the true chorion appears. Soon the allantois reaches the inner surface of the chorion, and each villus receives a separate artery and vein. About the third month they project into the maternal tissues, and abstract oxygen, nutriment, etc., from the decidua, and tend to keep the ovum in the upper part of the uterus. Hypertrophy of one part takes place to form the placenta, elsewhere the villi undergo atrophy.

In the formation of cysts the epithelium of the villi is first affected. The connective tissue undergoes a remarkable proliferation and collects at particular spots, the rest of the villus remaining unchanged. By the growth of these elements each villus becomes distended, and many of the cells liquefy. The fluid thus produced separates the connective tissue and forms a net-work in the interior of the villus. In this way are formed the peculiar grape-like bodies which characterize the disease.

When once the degeneration has commenced, the diseased tissue increases remarkably fast. The altered chorion maintains its nutrition by its connection with the decidua.

Sometimes the mass adheres so intimately to the uterine wall that their separation is a difficult matter; or the villi may force themselves into the substance of the uterus, and thus produce thinning of the walls of this organ. A whole villus is often almost completely transformed into a bunch of vesicles as large as gooseberries. Upon the larger of these smaller ones are often inserted, and generally by a very fine pedicle, a portion of the undilated branch of the chorion. Sometimes, when the alteration affects but a small number of the villi, the fetus may be fully developed, but this is a very rare occurrence. Should the change be more recent or less complete, the fetus would present various grades of development.

It is a much-disputed question as to whether the child or the mother plays the more important part in the production of this cystic disease. Some suppose it to follow the death of the fetus. Then the entire developmental power is expended on the chorion, which retains its attachment to the decidua, the result being abnormal growth and cystic degeneration. Graily Hewitt and Greise hold this opinion, and their view is strengthened by the fact that in almost all cases the fetus has entirely disappeared; and the occasional occurrence of twin conceptions in which one chorion has degenerated, the other remaining

healthy until term. Others, among them Virchow, claim a maternal origin, or to a blood dyscrasia on the part of the mother, such as syphilis. According to this view, the death of the fetus is secondary, the consequence of impaired nutrition from the morbid state of the decidua. Both may be correct; for when the villi become dropsical, the death of the fetus necessarily ensues; and occurring at a period very near that of conception, it might undergo solution in the amniotic fluid, and thus disappear. Taking the above views of the case, it is essentially a disease of pregnancy, and so cannot occur independently of conception. Hewitt relates an interesting case in which acephalocysts were expelled from the uterus of a patient who ultimately recovered. A careful examination of the cysts and their contents showed their true nature, as the echinococci heads with their characteristic hooklets were discovered on microscopical examination. Cases have also occurred where entozoa have formed in the uterus, and have been expelled per vaginam, which were at first mistaken for true cystic disease. Hewitt relates one case in which true hydatids, originally formed in the liver, had extended to the peritoneum, and were about to burst per vaginam at the time of death. This occurred in an unmarried woman.

Another interesting question, which may at times become of the greatest practical importance, is how long the vesicles can remain in the uterus, and the possibility of a fresh growth from a few retained cysts. In this regard McClintock says: "Hydatids may be retained *in utero* for months and even years; or a portion may be expelled and the residue throw out a fresh crop of vesicles to be discharged at a future occasion." Barton Cooke Hirst gives the frequency of this disease as 1 in 2000, and its mortality over 13 per cent., and gives as the causes of death hemorrhage, sepsis, and perforation of the uterus.

J. G., age 24 years; married seven years. She gives a history of two normal easy confinements, both children being healthy and well developed. She came to this country from Russia about four months ago, in splendid health and weighing 195 pounds. When here about two months her menstruation ceased, and she supposed herself pregnant. In about one month from the cessation of menstruation she began to be troubled with almost constant vomiting, food being ejected as soon as taken. So grave was this that her weight had been reduced to nearly 100 pounds. Coincident with this obstinate hyperemesis was hemorrhage from the womb, which was almost continuous, with frequent and alarming exacerbations. She was rapidly losing flesh and strength, and becoming very anemic. Her family history was negative, or rather very good; as her mother had borne, according to the patient's story, twenty children in the same number of years,—some of her labors being productive of twins. She has two married sisters who

have given birth to healthy children. No symptoms indicative of any specific disease on her part or her husband's could be elicited.

When we were called in to see her it was four weeks and three days since her hemorrhage and vomiting had commenced. She was quite emaciated and her appearance denoted the loss of a very large amount of blood.

For three weeks previous she had been attended by a local doctor and a midwife, but treatment produced no amelioration of her distressing symptoms. They evidently did not recognize the true nature of the disease, for, as the patient herself said, they told her every day "that she would be all right to-morrow." A "to-morrow" that was four weeks in coming.

The first thing we did was to endeavor to control the vomiting, and this was speedily and successfully accomplished by a few doses of cerium oxalate. And then to discover, if possible, the true cause of her dangerous condition. Upon examination the following conditions were found to exist: Great prominence of the abdomen and uterus. In fact, the womb was as large as one would expect to find it at the seventh month. A very marked sense of fluctuation made us at first suppose it might be a collection of fluid of ovarian origin. But closer examination proved that it was an accumulation of fluid in the uterus itself. The contour of the womb, felt through the abdominal wall, was found to be more irregular than would naturally be expected. No solidity could be discerned at any point of the abdomen.

Examination with the finger per vaginam found the uterus soft, and the os dilated to the size of a quarter. Ballottement could not be obtained. As yet no cysts had been passed, but the hemorrhage was considerable. The absence of cysts rendered a positive diagnosis impossible. But as the more prominent symptoms—great increase in the size of the uterus, considerable hemorrhage, and aggravated reflex vomiting—pointed to cystic disease, and as the patient's pains were constantly increasing, we decided to interfere and clean out the womb.

Ergot was administered, and an effort made to clean out the uterus by the hand. It was not deemed necessary to etherize the patient. In the mouth of the womb could be felt a soft spongy body presenting to the finger all the characteristics of placenta. An attempt to remove this was followed by a sudden and considerable gush of blood, a few clots and small pieces of placenta. No further attempt was made to clear the uterus beyond removing masses of cysts, which would become obstructed in the mouth of the womb. The pains continued strong and intermittent, and with each one as the uterus contracted large quantities of cysts were passed. But there was no more hemorrhage, as the flow had entirely ceased as soon as the cysts com-

menced to be expelled. This intermittent passage was kept up for two hours, small doses of ergot being administered whenever the pains were disposed to lag. The total quantity of cysts passed was enormous, measuring four quarts. They varied in size from a pea to a walnut, but none were as large as a hen's egg, as reported by some writers. They resembled bunches of grapes, only each one had not a separate pedicle. Some grew from other vesicles, while a few did have distinct pedicles. The majority of the cysts were not entirely full, and contained a colorless transparent fluid resembling the liquor amnii.

The after-treatment consisted in antiseptic douches, rest, and tonics. The patient did well and is now rapidly regaining her lost flesh and strength.

In this case the main symptoms were unusually severe reflex vomiting, continual and at times alarming hemorrhage, and a too rapid increase in the size of the uterus.

Cases are recorded, and among them one by Dr. Louvert-Lamane, in which the uterus was actually decreased in size. In these cases the amount of cysts must have been very small.

In case it should be necessary to introduce the hand into the uterus to dislodge the cysts, too energetic attempts at separation should be avoided, on account of the occasional firm adhesion of the cystic mass to the uterus, and the thinning of the uterine wall.

M. Pajot relates three cases, in only one of which a positive diagnosis could be made. In this case a gum-elastic catheter was introduced through the internal orifice and ergot administered. This treatment was followed by the expulsion of a large quantity of cysts, but the patient progressively lost strength, and died a few days after the operation.

Cases are related where this disease happened a second time in the same person ; but rarely does it appear to have any effect on the general health of the patient or upon subsequent pregnancies.

Thyroid Extract in Psoriasis.

Bramwell has obtained excellent results with thyroid extract in a number of cases of psoriasis. Five to ten drops are administered three times a day, and an improvement is observed in the course of a few days. Relapses occur as after other methods of treatment. The active degeneration following thyroid feeding in myxedema prompted the use of this remedy in inflammatory skin affections.—*British Medical Journal.*

SOME EXPERIMENTS UPON THE PRIMÆ VIÆ, WITH REPORT OF A NEW METHOD IN ENTERORRHAPHY; ITS TECHNIQUE AND RESULTS.[1]

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From the time of Celsus to the days of Lembert, operations upon the primæ viæ were few and far between; owing, no doubt, to the surgeons of that era failing to appreciate the fact that the serosa and mucosa would not adhere to each other. It was left for Bichat to demonstrate that mucous and serous surfaces had no tendency to affiliate.

However, after Lembert had established his law regarding the healing of intestinal wounds, to wit: that in the regeneration of wounds of the intestines, either as the result of pathological changes, or as the result of trauma, the serosæ must be applied directly *vis-à-vis*, surgeons began to awaken from their lethargy, and to seek more knowledge regarding this important subject by experiments upon the lower animals. The many devices—mechanical and otherwise—which they used in their experiments are both interesting and instructive, for they eventually paved the way for the various methods now in vogue. Again, on the other hand, very little progress was made in intestinal surgery until Sir Joseph Lister instituted the use of the aseptic ligature in surgical practice.

Since then, surgeons have been stimulated to renewed endeavor through the instrumentality of N. Senn, who might well be styled the pioneer in recent surgical procedures upon the primæ viæ. He demonstrated that with perfect asepsis many of the dangers formerly encountered in this field are shorn of their horrors. He showed that after a great number of experiments upon animals with the ligature alone, and then with some mechanical contrivance associated with the ligature, that the best results were to be obtained by the use of the latter method, which after many trials with absorbable and non-absorbable material led him to adopt his decalcified bone plates. No matter what method is used, the ultimate object is to obtain a certain amount of serosa for approximation, and to secure rest, as it were, for the coaptated parts.

As no one procedure is applicable in all affections of the intestinal tract, it is well for the surgeon to familiarize himself with the

[1] Read at the Tennessee State Medical Association, held at Memphis, Tenn., April 11, 1894.

most practicable methods, so as to be able to meet any emergency that may arise. In order to thoroughly understand the technique of operations in this situation, experiment upon animals offers the best field to exercise his dexterity. Therefore, while it is not the intent or purpose of the writer—having respect to the main point of the paper—to embrace within the scope of this thesis any lengthy account of the trial operation upon the primæ viæ underwent before being recognized as a legitimate surgical procedure, nevertheless, before entering upon any detailed description of our experiments a brief *résumé* of intestinal operations may be instructive.

The first mention of any procedure upon the intestinal tract was of the suture, the continuous or Glover's suture finding most favor. This was soon followed by the use of hollow cylinders of elder, over which the bowel was stitched. Salceto used the dry intestine of animals, and also the trachea of animals in the same way. These experimentres did not stitch bodies in the gut. Later, Du Verger used the tracheal support, but modified it from its predecessors by including it in the suture. In the same way Sabatier used card-board covered with some unguent. All these processes were, according to Senn, denominated differently as that of the four masters, who used four stitches ; that of Du Verger who used two ; of Sabatier who used one. These were still further modified by Ritsch by "passing the thread from side to side through the centre of the bowel and the cylinder, when the ends were twisted and brought out of the external wound."

Watson recommended a cylinder of fish-glue, and operated successfully on a dog. Von Walther, on the other hand, used a tube of India-rubber. Guy de Schauliac used the Glover suture. Richard Wiseman (1686), Purman (1730), and Mr. Samuel Sharp (1769) wrote upon intestinal injuries, advising the use of the Glover suture. In complete transverse wounds of intestines cures had followed adhesion of proximal end of gut in wound. Paracelsus proposed in transverse wounds of intestines the formation of an artificial anus. Finally, Palfyn advised that in all wounds of intestines that were accessible, to bring visceral wound in contact with external wound, and hold in position with suture passed through mesentery till adhesions formed.

De la Peyronie still further modified Palfyn's method by stitching "the bowel at the same time to the margin of the external wound." Benjamin Bell treated transverse wounds of intestines by bringing both ends of divided gut in external wound, and holding them there with sutures. Reybard accomplished the same purpose by using a small piece of wood with two sutures, each of which embraced the entire thickness of bowel wall and abdominal wall. Garengeot, Larrey, and B. Bell each modified the Glover suture. Bertrandi and

Pettit devised the *sutura transgressiva*. La Dran, Richter, and Lœffler each devised a suture.

The different sutures thus far devised not meeting with the success their promoters anticipated, surgeons began casting about for other methods of treating complete transverse wounds of intestine. As early as 1730 Ramdohr recommended invagination in complete transverse wounds of intestines, and reported a successful case thus treated, occurring in a soldier. Louis, B. Bell, Chopart, and Desault modified Ramdohr's method. Travers modified the method of Ramdohr, Louis, Bell, and others, by cutting the thread short to the knot, then returning the intestine into the abdomen, and not keeping it in contact with external wound as his predecessors had done. In due course Dupuytren devised his suture, which is the continued suture with a Lembert stitch. Dieffenbach, on the other hand, while using the continued suture, included only the peritoneal coat.

Nélaton spoke favorably of Gely's suture, which was modified by Blatin, who used two threads of different color. Emmert's suture is simply a double series of Lembert's suture on either side of the wound, the corresponding sutures being tied, and the margins of the wound inverted. Bonnison used insect pins held together with sutures. Jobert (1827), recognizing Lembert's law, modified Ramdohr's method by turning in the edge of the lower end of cut gut before inserting intussusceptum into intussuscepiens.

Amussat, as early as 1834, used with invagination a hollow cylinder of elder with a circular groove in the centre. A thread was tied around the bowel at this groove, which soon cut its way into the lumen, freeing the cylinder, and leaving the bowel adherent at the constriction. Choise, in 1837, used in his experiments, in lieu of the elder cylinder, the trachea of an animal, and then encircled the bowel over trachea with ligature, as in Amussat's operation. Subsequently he used cork with good result.

As early as 1826, Denans used rings of metal, which he introduced into end of bowel, in his experiments on transverse wounds of intestines in making end-to-end union. Then, inverting ends of bowel over rings, and holding them together with a smaller but wider ring, which he inserted into end ring. The rings subsequently relieved themselves by pressure-atrophy, and left the bowel ends firmly adherent. Baudens modified Denans's operation by using a single cylinder with a transverse groove in the centre, and two rubber rings. Henrotz used rings with metallic points, which perforated the mucous membrane, and held it opposed to the mucous membrane in opposite end of cut bowel by perforating the opposite ring. He again ignored Lembert's law, and was thus doomed to failure.

In longitudinal wounds of intestine, Beranger-Feraud used clamps of cork with insect pins. The pins punctured entire thickness of bowel wall and, penetrating the opposite cut edge, buried themselves in a corresponding piece of cork. The corks relieved themselves by pressure-atrophy leaving the serosæ in apposition and adherent. Bobrick (1850) used for the same purpose a clamp of sheet lead or silver, by which he held the inverted edges of bowel together till adhesions formed.

As none of these procedures met the desired indication in the treatment of intestinal affections, the inventive and constructive genius of surgeons was exercised to the utmost to devise some method whereby an ideal suture could be employed in treating disease or trauma of this tract. And after much painstaking research and honest endeavor, fortified by a large number of experiments upon animals, we have the present splendid achievements of modern surgery.

Since the Lembert suture alone did not effect the ideal result in approximating the cut edges of the bowel, other surgeons have still further devised modifications of his procedure, some of which are useful, while others are interesting only from an historical stand-point. Among those sutures that have been devised to overcome the defects of the Lembert stitch—to wit, that the cut edges were not accurately approximated, thus allowing the secretion of intestines to contaminate wound—may be mentioned Gussenbauer's, which, according to Barker, entered the serous and muscular coats a short distance from the cut edge and was brought out again. He then entered a second time through serosa and muscular coat, emerging on cut edge of wound superficial to mucosa. It was then entered at the opposite point in the cut edge and carried through the bowel coat in the reverse direction.

Czerny further modified the Lembert suture by using a double row of stitches. His first set entering serosa, included bowel wall down to mucosa and came out on cut edge. Then, entering at opposite point on cut edge, passed out on serosa in reverse direction. The second row was Lembert's suture and was placed in interval between two stitches of first row. This was intended to reinforce first row and bring more serosa in apposition. Again Woelfler has modified the Czerny stitch in circular enterorrhaphy by entering his suture between muscular and mucous coats on the cut edges and tying within the lumen of the gut. He includes, though, only the two outer layers of bowel, the second row being applied as in Czerny's second row. Mr. C. S. Bishop, of Manchester, has devised a very interesting suture which he used quite successfully in his experimental work.

Kummer first excised a circular ring of mucous membrane which he sutured separately and then brought inverted serosæ together with interrupted sutures. Chaput only scraped mucosa to denude it of epi-

thelium. M. E. Connell, of Milwaukee, M. L. Harris, of Chicago, and Maunsell, of New Zealand, have each devised new methods in circular enterorrhaphy, which are both interesting and instructive and well worth the attention of surgeons.

In an end-to-end union of the intestine, Senn employs a modification of Jobert's operation, a method which he lauds very highly.

Neubert modified the plan of Amussat by using, instead of cylinders of elder, hollow cylinders of bone, and reports good results. Recently, however, Dr. John B. Murphy, of Chicago, has devised and successfully employed, both on animals and human subjects, a very ingenious contrivance in the shape of a button. While some have deprecated its usefulness in intestinal surgery, in the hands of Dr. Murphy and other surgeons very brilliant results have followed its adoption, especially in operations for establishing a communication between gall-bladder and intestine. Therefore, before relegating it to oblivion, as some would do, it certainly deserves the further attention of the profession. Professor Adelbert Raumauge, of Buenos Ayres, has also an instrument intended for the same purpose as the Murphy button.

Since Senn with his decalcified bone plates proved by his demonstrations on the lower animals, and subsequently on man, that the fecal circulation, stopped from any cause whatever, could be restored by a fistulous opening in bowel above and below the obstruction and that the cut-off part would not be to the patient's disadvantage, a great many substances have been used by surgeons to accomplish the same purpose as the bone plates, such as catgut rings by Abbe and Matas; catgut mats by Davis, of Birmingham; segmented rubber rings by Brokaw; rawhide and segmented rubber plates by Robinson; cartilage plates by Stamm; chromicized gelatin plates by Shrively and Simonson; potato plates by Dawborn, and Swedish turnip plates by Von Boracz. H. Littlewood, an English surgeon, has modified Senn's method by using bone plates with decalcified bone cylinder in centre of approximation plates, thus doing away with sutures. But he further enhanced the strength of approximated serosæ by inserting sutures around plate. Sachs's method is a modification of Senn's. He also strengthens approximation plates with sutures. Professor A. W. Mayo Robson uses decalcified bone bobbin for effecting approximation of bowel and reports a number of successful operations upon man.

However, whatever method is used by the surgeon it seems that there is, according to one of the great lights in this department of the healing art, something yet lacking. For in a very elaborate and exhaustive paper, delivered by N. Senn before the Military Surgeons of the National Guard of the United States of America, he says, "We

have reason to believe that the technique of intestinal suturing remains an unfinished chapter, and that the ideal method of uniting intestinal wounds has yet to be devised."

For the purpose of familiarizing myself with the technique of intestinal surgery and of testing the efficacy of hydrogen gas in locating perforations of the primæ viæ I instituted some observations upon animals, the result of which experiments I hereby offer. And before entering into a discussion of our experiments I wish to say that these operations were performed in my laboratory at the Tennessee Medical College, and as far as the technique is concerned were done under the strictest detail as regards the antiseptic treatment of wounds,—*i.e.*, the field of operation was shaved, thoroughly washed with strong antiseptic solution and alcohol. The instruments, sponges, utensils, hands of operator and assistants were likewise rendered thoroughly aseptic. On the other hand, there was no preparation as regards the condition of the animal before or after the operation. Nevertheless, after the abdomen was entered I was very careful to prevent any extravasation into abdominal cavity by drawing only that portion of primæ viæ intended for operation into external wound, and packing bichloride gauze around gut at margin of wound; I then displaced fecal matter away from field of operation by pressing on either side of gut with my fingers, and tying elastic ligature around gut above and below point of incision in bowel,—which incision was long enough to admit plates and ligatures armed with needles, which were passed through bowel wall from within out, these threads were then tied to corresponding threads in another portion of bowel: this ligature around bowel prevented fecal regurgitation from contaminating wound, embarrassing operation and also causing septic peritonitis. As for the diet subsequent to closing external wound, no attention was paid to it, the dog being allowed to run about and eat what it wished.

Experiment I.—Medium-sized cat. Made incision through linea alba, and excised two inches of gut eighteen inches above ileo-cecal valve, and restored continuity of bowel by Senn's invagination method. Recovered from operation. Bowels moved once and vomited once. Lived twenty-four hours.

Post-mortem.—Examination showed diffused septic peritonitis. Omentum partially adhered to gut. Perforation of bowel at site of operation near mesenteric attachment.

Experiment II.—Small-sized bitch. Opened abdomen through linea alba, and excised two inches of ileum twelve inches above ileo-cecal valve, and brought ends together with Czerny-Lembert suture. Transplanted omental ring around gut at seat of operation and secured with catgut. Considerable hemorrhage from mesentery. Closed wound

in abdomen with deep catgut and superficial silk sutures. Lived forty-eight hours.

Post-mortem.—Diffused septic peritonitis. Bowels matted together. Perforation at point of union of intestine near mesenteric attachment. Omental graft not adhered.

Experiment III.—Yearling pointer bitch. Opened abdomen through linea alba, and excised two inches of bowel above ileo-cecal valve. Used Senn's invagination method, and in addition buoyed up the coaptated parts with Lembert's suture in interval of two invagination sutures. Dog made a rapid and uninterrupted recovery, and was alive and well seven months afterwards, when I lost all trace of her, she having borne a litter of pups in the mean time.

Experiment IV.—Large white dog, weight sixty pounds. Made incision in median line of abdomen, and forty-three inches above cecum made jejuno-ileostomy (cutting off six inches of bowel from fecal circulation) with cartilage plates and sutures. The cartilage plates were reinforced with Dieffenbach's suture of catgut thread. Nothnagel's test corroborated. Thirteen days after operation killed dog.

Post-mortem.—Omentum adhered to gut around fistulous opening, on examination, fistulous communication was large enough to admit thumb to metacarpo-phalangeal joint.

Experiment V.—Large black dog; weight fifty pounds. Opened abdomen in median line, and divided gut forty-one inches above ileo-cecal fissure, inverted ends, and applied continuous catgut suture. Then made lateral anastomosis with cartilage plate three inches from inverted ends of bowel. Fistulous opening on convex side of bowel one inch long. Reinforced plates with Dieffenbach's continuous catgut suture. Nothnagel's test corroborated. Animal killed twenty-two days after operation. External wound healed. Omentum adhered to inner surface of abdominal wound and to sides of bowel at anastomosis. On proximal side of anastomosis bowel dilated for six inches. New opening in bowel admits the right index finger up to the second joint; in fact, as large as lumen of bowel at distal side of operation.

Experiment VI.—Large black dog, weight sixty pounds. Opened abdomen in linea alba extending from xiphoid cartilage three inches towards umbilicus. Made gastro duodenostomy with cartilage plates between anterior surface of stomach and convex surface of duodenum. Strengthened plates with Dieffenbach's suture of catgut. Closed abdominal wound with superficial and deep sutures, and had just finished operation when dog expired. Used chloroform in early part of operation because dog hard to manage; later used ether.

Experiment VII.—Large black dog, weight forty-nine pounds. Made incision in median line from xiphoid cartilage to umbilicus.

Drew stomach into wound. Tore through omentum and made incision in posterior surface of stomach one and one-half inches long, and inserted a partially-ossified cartilage plate, and united this to a similar opening in ileum, forty-three inches above cecum, and backed up plates with Dieffenbach's suture. Then closed abdominal wound with superficial and deep sutures. Animal rallied well, and was killed ten days after operation. Abdominal wound healed. Opening between stomach and intestines closed except a small fistula about the size of a knitting-needle. Omentum adhered to bowels, forming several loops.

Experiment VIII.—Large black-and-white spotted hound. Etherized him, and after placing him on table, shot him twice in abdomen with Flobert rifle at short range. First shot entered on left side a little below and three and one-half inches to left of umbilicus. Second, one inch nearer median line on same level as former, and buried itself beneath skin on left side. The line of entrance of first ball could not be traced (hence cause of second shot) owing to change in relative position of abdominal muscles. Entering grooved director into second wound of entrance, I then attempted Senn's hydrogen-gas test by placing nozzle of glass tube high in rectum, with negative results. After repeated attempts with considerable pressure, I abandoned the experiment, and proceeded to open abdominal cavity to find cause of failure. The rectum, sigmoid flexure, and part of ascending colon were impacted with hardened feces. Abdominal cavity filled with blood. The ascending colon was perforated at its commencement; the transverse colon was perforated in two places. There were five perforations in small intestines. Spleen wounded in two places, and owing to uncontrollable hemorrhage, I removed it after tying it with cobbler's stitch. There was considerable oozing from wound of mesentery, which I also stopped with cobbler's stitch of catgut. There was no escape of fecal matter except in descending colon, where gut was impacted with it, and then only when I attempted to close wound. I closed wound in rest of primæ viæ with catgut sutures. Closed wound in abdomen with deep sutures. Dog died of shock in less than one hour. Hydrogen gas introduced above impaction in colon escaped at opening in transverse colon, and burned with characteristic flame.

Experiment IX.—Small black dog. Etherized and tried Senn's hydrogen-gas test in rectum. But after repeated trials and heavy pressure failed from impaction of feces in bowel.

Experiment X.—Large black dog. Made incision in median line. After bringing cecum in wound, excised it with five inches of ascending colon, with three inches of lower extremity of ileum. Then, after invaginating cut ends of gut and using Dieffenbach's suture with catgut thread, I made ileo-colostomy by lateral anastomosis with cartilage

plates. I then reinforced plates at side and at proximal extremity with Dieffenbach's suture of catgut, leaving distal end of plate unsupported. Dog rallied well, and on following day was running about. However, forty-eight hours after operation the dog died. Necropsy showed about one-half pint of bloody serum in abdomen, very offensive, and at extremity of plate not reinforced with suture there was a dark-colored liquid mixed with feces oozing out between approximated surfaces of gut. Wherever the catgut sutures had been inserted, they were covered over and entirely hidden from view by a plastic exudate, thus completely preventing escape of fecal matter. This showed it was not sufficient to trust to tying of plates alone.

Experiment XI.—Medium-sized black dog. Opened abdomen through right linea semilunaris and removed cecum with three inches of ascending colon, and ten inches of ileum, using cobbler's stitch on mesentery of removed portion of gut. Invaginated cut ends of gut, and made ileo-colostomy by lateral anastomosis with cartilage plate, reinforced with Dieffenbach's suture. Dog lived twelve hours. Necropsy showed that in one ligature I had included mesentery supplying four to five feet of small intestine. The gut supplied by ligatured mesentery was gangrenous.

Experiment XII.—Large white dog. Opened abdomen through right linea semilunaris and removed cecum with three inches of ascending colon and two inches of ileum. Used two sutures on mesentery supplying removed gut, then tore mesentery off of gut; scarcely any hemorrhage. Invaginated cut ends of gut, and then did ileo-colostomy by lateral anastomosis with cartilage plates. Reinforced plates with catgut sutures and Dieffenbach's stitch round entire circumference, except distal end. Dog rallied and lived twenty-four hours. Post-mortem showed septic peritonitis. About half a pint of dirty, dish-water-looking, offensive fluid in abdominal cavity. Invaginated ends of cut gut covered over with plastic lymph. Where cartilage plates were reinforced with catgut they were completely covered over with plastic lymph, shutting off escaping feces. At end of plates not reinforced the secretions from bowel were exuding.

Experiment XIII.—Full-grown bull-dog. Opened the abdomen through right linea semilunaris. Removed cecum with three inches of ascending colon and two inches of ileum. Closed bowel with Dieffenbach's stitch of catgut, and made ileo-colostomy by lateral anastomosis with cartilage plates. Bowel on one side of plates tore through, and plates difficult to handle, having a tendency to slip about. Nevertheless, closed rent and used Dieffenbach's suture with catgut thread around entire circumference of cartilage plate. Clamped arteries running through mesentery to cut off gut with hemostatic forceps till

operation completed, then tore mesentery away from cut off bowel. No hemorrhage. Closed wound in abdomen with three sets of sutures. Dog rallied well and lived thirty hours. Necropsy showed septic peritonitis due to perforation opposite weak point in bowel where plate had torn through. About one-half pint of dark, offensive liquid in abdominal cavity. Around circumference of plates all the sutures entirely covered with plastic exudate.

Experiment XIV.—Medium-sized black dog. Opened abdomen in right linea semilunaris. Hard to find cecum. Had to eventrate. Removed cecum with three inches of ascending colon and three inches of ileum. Invaginated ends and inserted Lembert's suture. Great difficulty in invaginating ileum. Clamped artery supplying cut off gut with hemostatic forceps. Tore mesentery from cut off gut. No hemorrhage. Made lateral ileo-colostomy with cartilage plates. Scraped approximated surface of serosæ. Made Dieffenbach's suture around entire circumference of plates. Closed wound in abdomen with one row of sutures only. Dog never rallied, and died of shock fourteen hours after operation. Necropsy. Invaginated ends of gut adherent and partially covered with plastic lymph. Surface of gut in apposition by lateral anastomosis firmly adherent. Dieffenbach's suture partially covered with plastic exudate.

Experiment XV.—White-and-tan dog, weight sixty pounds. Made incision through right linea semilunaris. Removed cecum and two inches of ileum. Invaginated cut ends of gut and held in position with Lembert's suture. Made ileo-colostomy by lateral anastomosis with cartilage plates, using Dieffenbach's suture with catgut thread. Closed belly wound with deep catgut and superficial silk sutures. Dog lived twelve hours and died of shock. Necropsy. Invaginated ends partly covered with lymph. The sutures and entire surface of approximated bowel on one side of cartilage plates covered with plastic lymph.

As all the above experiments were made with cartilage plates (secured from the scapula of the ox), which were oftentimes difficult to manage, having a tendency to slip about, even after being in position in bowel, and the sutures had penetrated entire thickness of bowel wall. Therefore I have adopted in lieu of the plates and sutures a button which I have demonstrated by experiments upon the lower animals to be superior, besides more expeditious than bone plates, cartilage plates, potato plates, the rings of Denans and Henrotz in use half a century ago, the buttons of Murphy and Raumauge of more recent date, or any other mechanical contrivance yet devised for lateral anastomosis. Again, because approximation with plates is not so accurate as in the use of the button, and in the hands of an inexpert surgeon the intestinal secretions are more liable to escape between plates. The button

I use in my experiments consists of a male and a female portion. The female portion of button was made of brass (though for obvious reason aluminum or silver would have been better), and has a base seven-sixteenths of an inch in diameter, with a small cylinder projecting from it about three-sixteenths of an inch long, hollow from end to end, and with a slit on either side of cylinder reaching nearly to base. The male button, which is solid, consists of a base five-sixteenths of an inch in diameter with a neck one-fourth of an inch long. This fits into and may penetrate beyond base of female button.

To make buttons easier of introduction the female is accompanied by a sharp steel point about one inch long, which has a neck guarded by shoulder, and this neck fits into apex of cylinder of female button. The male button is also accompanied by a sharp-pointed cap, one inch long, hollow at its base. This fits over neck of male button.

The technique of the operation when using the button is the same as when using the plates, till after the incision—the desired length—is made in the intestine, when an assistant arms the female portion with the steel point, which you quickly thrust through entire thickness of bowel wall from within out, commencing on lower side of fissure. Then fitting the sharp spike or cap over male button, it is passed through a corresponding point in opposite cut edge of bowel from within out. The male is then fitted in female button and pushed home from within the lumen of bowel. In like manner the angles of fissure are approximated, leaving the upper sides of opening to be closed last. Here the surgeon, after inserting buttons, is to grasp the base of male and female button separately with tissue forceps, and, after inverting cut edges of wounds with buttons *in situ* so as to bring the serosæ *vis-à-vis*, engages male button in female and pushes it home from without through bowel wall.

The following experiments demonstrated the feasibility of my method :

Experiment XVI.—Large white dog, weight sixty pounds. Made incision in median line three inches long. Cut off intestinal circulation, three inches long, thirty inches from pylorus. Made ileo-ileostomy—the fistula being one inch long—and introduced my buttons with one cartilage plate which carried the male buttons. There was considerable laceration of bowel on one side of plate (owing to plate slipping), which was closed with catgut. Reinforced cartilage around entire circumference with Dieffenbach's suture. Closed belly wound with deep and superficial sutures. Dog vomited frequently on this and on following day. On second day omentum protruded through wound in abdomen. I tied ligature around this and then cut off protrusion, after which I fastened stump in wound with cobbler's stitches. Dog did well. Five

days after operation killed animal. Necropsy showed omentum adhered to wound in abdomen and also to bowel where rent was closed. On

Fig. 1. Fig. 2.

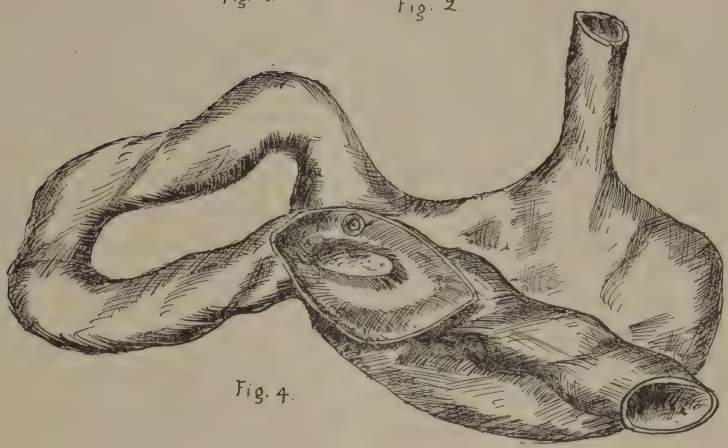

Fig. 4.

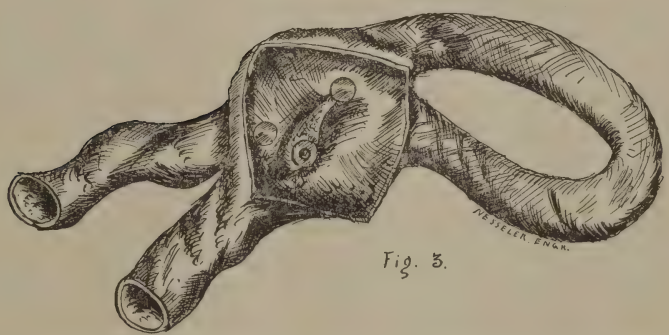

Fig. 3.

FIG. 1.—Female button accompanied by sharp steel point to facilitate introduction.

FIG. 2.—Male button accompanied by sharp spike to facilitate introduction.

FIG. 3.—Jejuno-ileostomy with four buttons forty-two inches from cecum. Incision on rectal side five days after operation, showing three buttons around fistulous opening, having ulcerated through one thickness of coaptated bowels. One button has relieved itself by pressure-atrophy and passed away.

FIG. 4.—Gastro-jejunostomy with four buttons. Opening on distal side of bowel showing fistula and one button still *in situ* twenty-eight days after operation, the other three having relieved themselves by pressure-atrophy and passed away.

opening bowel on rectal or distal side I found one button gone and others ulcerating through. Passed entire thumb through fistulous opening. Unfortunately specimen was allowed to spoil.

Experiment XVII.—Large black dog, old, weight fifty pounds. Made incision in median line of abdomen, and did a jejuno-ileostomy forty-two inches from cecum, cutting off four inches of bowel from fecal circulation. Made incision in bowel two inches long, and introduced four buttons without plate. There was some ectropium of mucosa, which was overcome by tightening buttons. Strengthened buttons on each side by Dieffenbach's suture of catgut. Closed wound in belly with superficial and deep sutures. Dog rallied and was killed five days after operation. Necropsy showed omentum adhered around sides of operation enhanced with catgut. This I tore away, and found catgut not absorbed. Adhesion on one side of incision and at end of incision not very firm. Did not irritate approximate serosæ. Made incision through bowel on distal side. All of buttons except one on side had ulcerated through one thickness of coaptated bowels, as can be seen in specimen.

Experiment XVIII.—Gray-and-tan bird dog, weight forty pounds. Made incision in median line of abdomen extending from xiphoid cartilage to below umbilicus. Brought stomach into wound, and on its anterior surface made incision one inch long, then joined it to a similar incision on convex surface of bowel twenty-six inches from pylorus with four of my buttons. Then reinforced button around anastomosis by Dieffenbach's suture with catgut thread. Closed belly wound with deep catgut and superficial silkworm-gut sutures. Dog rallied and made a rapid and uninterrupted recovery. On second day and for several days afterwards feces were covered with blood. On eighteenth day first button passed, and between eighteenth and twenty-fourth day passed second. On twenty-eighth day after operation killed dog. Necropsy showed external wound healed. Omentum adhered on posterior surface of opposed bowels. Found a third button in lower part of rectum. One button still *in situ*, and bowel firmly adherent, firm union having occurred between opposed bowels. Opening between stomach and intestines large enough to admit right index finger to first joint, as can be seen in specimen.

In conclusion I submit the following observations:

(1) Perforations occurring at site of operation when making invagination are more liable to be near mesenteric attachment.

(2) Nothnagel's test was corroborated three times.

(3) When using hydrogen gas in locating perforation and obstruction in the primæ viæ, we must be sure there is no occlusion in the rectum, such as hardened feces, etc.

(4) In excision of cecum, when ligatures are applied to mesentery to stop hemorrhage, there is liability of including the arterial supply of bowel not in area of cut off gut.

(5) That it is not absolutely necessary to apply a ligature to mesenteric arteries in the cut off gut, simply compressing with hemostatic forceps and tearing the mesentery from its attachment to cut off gut being sufficient.

(6) That in making lateral anastomosis or end-to-end union of bowel while a slight scarification of the opposed serosæ would, as first pointed out by Davis, of Birmingham, hasten the adhesion and consequent definite union of coaptated parts, this may be ignored where the adherent surfaces are backed up by sutures.

(7) That where the coaptated parts are reinforced by sutures, such as catgut, a frame-work is formed for the plastic exudate, which is quickly thrown out, thereby shutting off any avenue for the intestinal contents to escape into abdominal cavity.

(8) Wherever sutures are applied to serosæ they will be covered with plastic exudate within twelve to forty-eight hours.

(9) That buttons offer many advantages as sutures over plates in making approximation of bowels by lateral anastomosis. Firstly, time, which is such an important factor in these operations, is greatly reduced. Secondly, they do not slip about and thus annoy and vex the surgeon. Thirdly, the approximation surface can be reduced or increased at the surgeon's will. Fourthly, they act as splints to the bowel and bring the coaptated parts into closer union, and the ectropium, which is sometimes troublesome to the surgeon, is easily controlled; and, lastly, the button, when it frees itself by pressure-atrophy, will, on account of its small size, easily pass through the ileo-cecal fissure.

(10) Wherever the fistulous communication between the bowel is over an inch in length, a button should be inserted every three-quarters of an inch to prevent ectropium and to bring bowel into closer union.

(11) That lateral anastomosis as a surgical procedure offers better ulterior results in restoring the fecal circulation than end-to-end union of bowel, because in former method, when the opening is long enough, it is not followed by so great traumatic stenosis as in end-to-end union.

(12) That in making this anastomosis my button is superior to plates. And therefore I offer it to the surgeons of America (in lieu of plates), to whose hands its future usefulness as a surgical procedure is consigned.

(13) That whatever procedure is adopted, it is safer to back up or reinforce the circumference of fistulous communication in coaptated bowels with sutures of fine aseptic silk, which will encapsulate itself, or catgut, which will be ultimately absorbed, the Dupuytren or the Dieffenbach suture being the quickest and easiest applied.

MEMORANDUM.

A REPORT OF TWO CASES OF PROCURSIVE EPILEPSY.

Among the rarer manifestations of epilepsy are those in which the patient, previous to the convulsion, performs automatically some co-ordinated movements such as running or walking, the phenomenon being called procursive epilepsy. At times these automatic movements may be the only manifestation of the paroxysm, no convulsion taking place. This is seen in Case II. The rarity of these phenomena may be judged from the fact that out of 125 cases of epilepsy treated at the clinic for nervous diseases of the University Hospital, only two presented these conditions. It is for this reason that these two cases are deemed worthy of record.

Case I.—A. C. R., aged 11 years, school-boy, was first seen October 24, 1889; his history was that since a small child he had been subject to violent spells of screaming during the night (night-terrors), and that four months before coming to the hospital he had had a spell, which commenced by his running in a circle around the room several times, all the while screaming violently, and then falling to the ground in a general convulsion, during which he became cyanosed, frothed at the mouth, and was drowsy afterwards. He was completely unconscious during the spell and subsequently remembered nothing of the running or screaming. Since this time he has had a number of attacks of a similar character. This case is also interesting in view of the possible relation between night-terrors and epilepsy.

Case II.—C. L., aged 3 years, was brought to the dispensary by her mother, who said that six months previously the patient was observed to suddenly run across the room, strike the wall with her head, and then to fall to the floor in a general convulsion, presenting all the characters of the epileptic seizure,—*i.e.*, unconsciousness, cyanosis, biting the tongue, etc. After the attack she went to sleep. Since this time she has had three of these seizures, all commencing in the same way. In the interval between these severe convulsive attacks the patient suffers from milder ones, in which she is noticed several times daily to perform the act of running across the room, exactly as described above, but without the convulsion following.

Charles S. Potts, M.D.,
Instructor in Nervous Diseases, University of Pennsylvania;
Assistant Neurologist to University Hospital.

ALUMNI NOTES.

THE Twenty-fourth Annual Reunion of the Alumni Society of the Medical Department of the University of Pennsylvania was held in St. George's Hall, Thirteenth and Arch Streets, on Wednesday, June 6. In the absence of the President of the Society, Dr. Traill Green, the meeting was called to order by the chairman of the Executive Committee, Dr. S. D. Risley. The ballot for officers resulted in the election of the following:

President.—Dr. Traill Green.

Vice-Presidents.—Drs. Meredith Clymer, W. S. W. Ruschenberger, Claudius Mastin, and Hiram Corson.

Secretary and Treasurer.—Dr. Joseph P. Tunis.

Executive Committee.—Drs. Horace Y. Evans, John Ashhurst, Jr., R. A. Cleemann, Samuel S. Stryker, DeForest Williard, Roland G. Curtin, Wharton Sinkler, S. D. Risley, Wm. Barton Hopkins, Charles W. Dulles, John H. Musser, John B. Deaver, Thomas R. Neilson, Judson Daland, John B. Shober, Elliston J. Morris, N. L. Johnson, Archibald G. Thomson, Alexander R. Craig, George Farquhar.

Following the business meeting the Society sat down to the banquet, which was well served, and a most enjoyable occasion, in spite of the fact that, from one cause or another, less than the usual number of members were present. The following toasts were given: "The University," Provost Pepper; "The Trustees," Rev. Dr. George Dana Boardman; "The Alumni," Dr. John Ashhurst, Jr.; "The Class of '94," Mr. Hubert A. Royster. Following these, speeches were made by Dr. Horatio C. Wood, Dr. John Marshall, and Dr. Stephen H. Weeks, of Portland, Maine, who spoke in a most happy vein. The pleasure of the festivities was greatly marred by the wretched acoustic properties of the hall, which made it almost impossible for the speakers to make themselves heard by those not in their immediate neighborhood.

At the meeting of the Alumni Society of the Medical Department of the University of Pennsylvania, the committee, appointed to secure the names of those Alumni who fell in the service of their country in the war of the Rebellion, reported that they now had a list of twenty names, four having been added during the year. The committee, of which Dr. Roland G. Curtin, 22 South Eighteenth Street, Philadelphia, is chairman, is anxious to make this list as complete as possible, and earnestly asks that any information on the subject may be sent to Dr. Curtin.

The following is a list of the graduates of the Medical Department of the University of Pennsylvania, practising in the province of New Brunswick, Canada.

A. H. Chandler, M.D., '57, Salisbury.

Charles H. Black, M.D., '59, Bail Verte, Westmoreland County. Dr. Black was for several years a member of the Provincial Legislature.

Silas Purdy, M.D., '62, Albert, Albert County.

H. R. Carter, M.D., '73, Port Elgin, Westmoreland County.

G. Hayward Coburn, M.D., '75, Frederickton. Dr. Coburn is a member of the Council of Physicians and Surgeons of New Brunswick, —also Registrar of the Council. The New Brunswick Council of Physicians and Surgeons give the right to practise in New Brunswick. He is also one of the Physicians to the Victoria Hospital, at Frederickton.

M. F. Bruce, M.D., '79, St. John. Oculist and Aurist.

William Nelson Hand, M.D., '88, Woodstock, Surgeon to the Canadian Pacific Railway.

G. Clowes Vanwart, M.D., '90, Frederickton, Surgeon to the Canadian Pacific Hospital, and one of the Physicians to the Victoria Hospital.

Robert G. Day, M.D., '92, St. John.

Appointments.

Dr. Joseph L. Nicholson, of the Class of 1890, has been appointed Visiting-Surgeon to the Cooper Hospital, Camden.

Dr. G. F. Wilbur (Class of '82), of Asbury Park, N. J., has recently been appointed a member of the State Board of Medical Examiners of New Jersey, by Governor Werts.

Necrology.

Dr. George G. Shoemaker, aged 38 years, of the Class of 1876, died at his home in Knox, Clarion Co., Pa., on May 20, 1894.

Chlorobrom in Sea-Sickness.

Hutcheson has obtained very satisfactory results with chlorobrom in sea-sickness. He gives three-drachm doses in the second stage, when retching, headache, depression, and sleeplessness are prominent symptoms. In order to secure a good night's rest, 10 P.M. is selected as the hour for administration.—*Lancet.*

EDITORIAL.

A NATIONAL DEPARTMENT OF PUBLIC HEALTH.

THE report of the reappearance of cholera, or cholerine, in scattered European cities calls attention anew to the question of adequate quarantine regulations and the supervision of boards of health. Too much praise cannot be bestowed upon the health officers of those Atlantic sea-ports engaged in European trade in effectually preventing the introduction of cholera into the country during the past two or three summers. As satisfactory as this service has been in the instances mentioned, it is fraught with a serious danger to the country at large, in the event of any one of these ports permitting a contagious disease to be introduced by the local authorities having relaxed in any measure their vigilance. The defect lies in the want of uniformity in the regulations of the various local health boards, and also in the fact that the inland States have absolutely no voice whatever in the quarantine regulations, although equally interested with the States bordering on the sea. It sometimes happens that a person who is infected with a contagious disease, which has not yet become manifest, arrives in port and immediately takes the train for the interior, thus reaching far inland before the disease appears. Not only so, but the interior is in constant communication with the large seaports, and any disease becoming epidemic in the latter must certainly affect the centres of population with which they are in constant intercourse by rail and otherwise.

These defects have frequently been dwelt upon, and as a remedy the American Medical Association has petitioned Congress to establish a Department of Public Health, with a secretary, who shall be a member of the Cabinet, and on a parity with the heads of the Departments already established. It is stipulated that the Secretary of the Department of Public Health should be a physician. This proposition received the approval of the Pan-American Medical Congress, held in Washington, in September, 1893.

In its petition to Congress, the American Medical Association calls attention to the fact that 524,000 deaths occurred in 1890 in the United States. Of these it is estimated that about one-half were due to diseases

that could have been prevented. The enormous number of 100,000 were due to consumption.

Although the plan would apparently be efficient, it is doubtful whether Congress could be induced to favor it.

A proposition which has in view the same object, and which probably would be more readily accepted by the government, is that recommended by the New York College of Medicine. This plan provides for a Commissioner of Public Health and an Advisory Council. The Commissioner shall be an expert sanitarian, appointed by the President, the appointment to be approved by the Senate. The Commissioner shall be the responsible head and executive officer of the bureau, and shall preside at the meetings of the Advisory Council. The latter body shall be composed of one member from each State, who shall be a physician of good repute, and who shall be appointed by the government of the State which he represents.

Surgeon-General George M. Sternberg, in a contribution upon this subject in the *North American Review*, strongly recommends the proposition of the New York College of Medicine.

Among the advantages to be gained by this system are:

(1) The department will be under the control of a single individual who will be solely responsible. The former National Board of Health proved a failure because it consisted of members living in different sections of the country, and who were engaged in other pursuits, excepting at such times as they met in Washington.

(2) Each State having a representative in the Advisory Council will be insured equal protection. Under the present system one State may have rigid quarantine regulations, and an adjoining State a very indifferent system. It will be readily seen that in this lack of uniformity lies a serious defect, and even a danger to the country at large.

(3) The collection of accurate statistics concerning the health of the population, and the diseases that are prevalent in the various sections of the country. At present we have no satisfactory statistics in this country upon this subject.

(4) By the meeting of the Advisory Council much good will result from the mutual exchange of views.

Before a change so radical as this could be accepted, certain obstacles would have to be met and overcome. Those already officially connected with the various local health organizations under the present system might feel that the change would endanger their authority, and even their positions. Faithful public servants are, however, always appreciated, and such need not fear that they would suffer by the change. There is, of course, the ever-present danger of the efficiency being lessened by filling the positions on account of political patronage

rather than distinct fitness. Happily, however, many of the public services are being divorced from partisanship, and this latter difficulty could readily be overcome.

The principal objects of the Central Health Bureau, according to Surgeon-General Sternberg, should be to extend and disseminate exact knowledge regarding sanitation, to give advice with regard to its application to special cases, to correspond with the central authorities of other countries, for the purpose of learning their methods of sanitary administration, and the results of the same, and to collect and publish vital statistics. He lays stress upon the importance of the last mentioned of its functions. It is only, he says, with reference to vital statistics that we can obtain precise information as to the principal areas of prevalence of various preventable diseases, the reasons for increased or diminished prevalence in a given area, and the results obtained by sanitary improvements.

THE ANNUAL COMMENCEMENT OF THE MEDICAL DEPARTMENT.

THE 120th Annual Commencement Exercises of the Medical Department of the University of Pennsylvania were held in the American Academy of Music, June 7, 1894. The date, as will be seen, is a month later than heretofore. This change has been brought about by lengthening the terms a corresponding period.

At the same time the exercises of the 16th Annual Commencement of the Dental Department, and the 8th of the Veterinary Department, were held.

The degree of Doctor of Medicine was conferred on 199 candidates, the largest class ever graduated in this country.

The lengthening of the Medical and Dental courses has made it possible this year, for the first time, to hold all of the exercises in one week,—"The University week." It is intended to continue this custom in the future, and to make it the event of the year.

AN OMISSION.

IN publishing a correspondence from Dr. Robert P. Finley, in the last issue of the MAGAZINE, his title was inadvertently omitted. Dr. Finley is a graduate of the Medical Department of the University of Pennsylvania, and, of course, should have been given his proper title.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D.

Diseases of the Heart Muscle in Typhoid Fever, Scarlet Fever, and Diphtheria.

Romberg (*Deutsche Archiv für klinische Medicin*, Vol. xlix, Parts 4 and 5). In typhoid fever the highest grades of parenchymatous degeneration of the heart-muscle are present by the end of the second week, and then disappear but slowly in the later weeks. Interstitial myocarditis begins mostly at the end of the second week. In scarlet fever interstitial myocarditis begins mostly on the fourth day, and becomes excessive in the middle of the second week. In diphtheria this degeneration begins somewhat later, at the seventh or ninth day, and is at its highest development at the end of the second or beginning of the third week. The characteristic fatty degeneration of diphtheria begins often very late. Symptoms during the fever: irregularity and smallness of the pulse and dilatation. The best sign of dilatation is the gallop rhythm. A very slow pulse is a bad prognostic sign in diphtheria. Dilatation is an important physical sign. The amount of urine is usually diminished; there is slight albuminuria with or without hyaline casts.

Myxedema Treated by Thyroid Extract.

Shattuck (*Boston Medical and Surgical Journal*, February 22, 1894) reports four cases of the above disease treated with the dried extract of the thyroid gland. Three of the cases were, undoubtedly, myxedema, and are examples of cures. The first case, however, presented some difficulties in diagnosis, and was not improved in the least by the treatment. In remarking upon the cases he says that in the first place we must recognize that there are differences in degree. Total inactivity of the gland is one thing, partial inactivity another. It is highly probable that the latter does not necessarily lead to the former. At all events, long periods of years may elapse before the mild passes into the fully-developed disease. Now that our attention is awakened he is convinced we shall find them pretty common. The dosage is important. In one case seven and a half grains of the extract were given at a dose. This caused terrible angenoid attacks, which required morphia to control them. Pains in the limbs and back have been noticed as caused by the treatment. It is well to begin with very small doses,—one grain of the extract twice daily,—and gradually increase it. It is probable that the treatment will have to be continued through the life of the patient, and that larger doses will be required in cold than in hot weather.

Treatment of Renal Disease.

Dickinson (*The Lancet*, February 10, 1894) expresses the following views as to the treatment of nephritis:

Acute Nephritis.—The disease has a tendency to recover spontaneously, qualified especially in scarlatinal nephritis by a tendency to fibrosis. Warmth in bed and a liquid diet are essential to recovery. The food should be milk, animal broths, and a moderate amount of farinaceous food. Water and aqueous drinks should be given freely. After a calomel purge it generally suffices to give a saline. Digitalis is to be given only if there is dropsy or if the urine be very scanty. Even though the urine contain blood no drug should be given to check the flow, as it is rather beneficial than otherwise. The usual diuretics are useless and even harmful, cantharides being especially harmful.

Chronic albuminuria may continue almost indefinitely without much apparent injury to the patient. The heart will hypertrophy as a salutary adjustment, and the dropsy may be indefinitely postponed. In a quiescent case temperance in diet is much to be preferred to austerity. Farinaceous and vegetable food may be allowed without restriction, milk in abundance, watery drinks freely, and the less alcohol the better. A purely milk diet is not advantageous. When urine is scant and of low specific gravity, large amounts of liquid should be taken. It is often necessary to save life. In movable cases it is well to have the patient in a warm climate with a low relative humidity. So far as medicines are concerned, it is a good practice to give a ferruginous laxative combined with a small dose of strychnine. The normal termination of the granular kidney is by uremia. Sweating should be enforced where the uremia is indicated by headache, vomiting, etc. A Turkish bath every ten days may long ward off what would otherwise happen, or a hot-air bath by a lamp under a sheet may be used. If the patient be weak, it is much better to give a partial hot-air bath than to envelop the whole body. The legs may be alone enveloped in the sheet, and this will be most invaluable in many instances.

Treatment of the Dropsy.—Nature's cure is hypertrophy of the heart. Measures which lessen the contents of the vessels and increase the force of the heart are indicated. Digitalis is almost invariably indicated. Most diuretics are useless; some are harmful, as cantharides. Vegetable salts of potash may be used. Hydragogue purgatives have their use. The abdomen may be tapped when there is excessive ascites, but the legs must never be tapped. Renal asthma admits of relief with alcohols, ethers, and amyl nitrite.

The Urine and Renal Complications in Typhoid Fever.

Hewetson (*The Johns Hopkins Hospital Reports*, Vol. IV, No. 1, 1894) has critically examined the urine in 229 cases of typhoid fever, and the kidneys in all the deaths occurring in the wards from this disease. The following are his conclusions in full:

(1) The *general*, physical, and chemical characteristics of the urine in typhoid fever do not differ materially from those in other acute infectious diseases.

(2) Although Ehrlich's diazo-reaction cannot be said to be pathognomonic of typhoid fever, being absent in some undoubted cases, while it is occasionally met with in a number of other diseases [notably tuberculosis—Abs.], still its occurrence in the urine when other suspicious symptoms are present is of definite diagnostic value.

(3) The marked increase in the quantity of toxic substance eliminated in the urine during the course of a case of typhoid fever, while the cold baths are being used, is of interest as offering a possible explanation of some of the benefits derived from the Brand method of treatment.

(4) The presence of albumin in the urine during the course of typhoid fever, while of very frequent occurrence, cannot be said to be a constant phenomenon. When present it is generally found as a faint trace, but may exist in large quantities associated with many tube-casts, and occasionally with blood; then we have all the clinical symptoms of a severe nephritis. This, however, even when of the acute hemorrhagic type, may completely disappear, and would seem to be less frequently the cause of a fatal termination than has been generally believed.

(5) The pathological changes found in the kidney in typhoid fever possess no characteristic or specific feature, being in fact those which may occur in any acute infectious disease. The evidences of parenchymatous changes in the kidney are constantly present, varying in intensity from slight degeneration to actual necrosis and abscess formation, and these are not infrequently associated with the presence of "lymphomatous" nodules.

(6) The lesions in the kidney in typhoid fever present no etiological unity, but just as degenerative and inflammatory changes in the other parts of the body may be due to a variety of micro-organisms, so the renal lesions in this disease may be due to the typhoid bacillus itself, or to micro-organisms which enter the circulation through the diseased intestinal wall, or sometimes to bacteria which reach the kidney by a direct process of extension from the lower urinary passages; while there is good reason to believe that the toxic products of the bacteria themselves may cause more extensive lesions.

Value of Examination of the Blood in Typhoid Fever.

Thayer (*The Johns Hopkins Hospital Reports*, Vol. iv, No. 1) gives the following as the results of numerous examinations of blood made by himself and compared with the best opinions of late writers:

Red Corpuscles.—At the beginning of the fever the number may be normal, and at the upper limit of normal. During the first weeks the number gradually falls. With defervescence there is a more marked and rapid fall, continuing into the first week of convalescence. Ordinarily the fall is slight, and is in direct relation to the severity of the case.

Hemoglobin.—This always falls with the red corpuscles; the loss, however, is relatively greater than the corpuscular loss. The return to the normal is longer delayed than is the corpuscular curve.

Leucocytes.—The number in the beginning of the fever is about normal, but tends throughout the course to diminish, reaching its lowest point at about the end of defervescence. With the beginning of convalescence the return to normal begins and lasts several weeks. In stained specimens the changes seen in the red corpuscles are those of any secondary anemia, but the white cells show a decrease in the multinuclear corpuscles and a relative increase in the large mononuclear elements.

From a diagnostic point of view the condition of the red corpuscles and the hemoglobin is of little importance, but the examination of the leucocytes numerically and histologically may give valuable help.

Fresh specimens when examined will enable us to distinguish from malaria by the absence of the hematozoa. In *tuberculosis* with a local inflammatory lesion

there is always a certain degree of leucocytosis, showing a distinct increase in the *multinuclear* elements. In the absence of leucocytosis and in change in the relative proportion of the two varieties of colorless corpuscles we have two points which are of great diagnostic value, while they are perhaps not pathognomonic.

Patulous Ductus Botalli.

Hochhaus (*Deutsche Archiv für klinische Medicin*, 51, 1) reports the following case in an article of pathology of the heart. Only twenty such cases have so far been reported. The patient was a man of 24 years. The diagnosis was made *during life*. The heart dulness was increased to the right and left. At the apex a systolic murmur could be heard. Over the aortic cartilage the first sound was loud; the second sound, moderately accompanied by a faint murmur. Over the pulmonary artery the first and second sounds were clear and loud, and there was a prolonged whistling murmur, diastolic in sound. The greatest intensity of this murmur was at the second right intercostal space, and was but slightly transmitted, except to the back in the left interscapular space, where it could be well heard. The patient was well until 12 years old. At that time symptoms of heart-disease developed. The sound was over the region of the pulmonary artery, and, as an aneurism could be excluded, the diagnosis of an open ductus botalli was made. The man died of acute endocarditis. The section proved why the sound was diastolic in time and not systolic, as is usual. There was an unusually wide duct up to the aorta, but at this point there was a marked stenosis. The blood was thrown into this duct by systole, but the pressure being higher in the aorta over the opening than in the pulmonary artery the blood could not enter the aorta. During diastole of the heart the blood in the pathological channel lost its pressure, and the blood gradually flowed through the narrow opening from the aorta into the dilated duct.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Finding the Upper End of a Divided Tendon.

Félizet (*Bulletin et Mémoires de la Société de Chirurgie*, 1893, p. 610), in cases in which the tendons are divided, whether at the wrist or hand, advises that the two adjoining fingers be fully extended. This will bring the upper end of the divided tendon down into view, and thus enable it to be seized. The affected finger is then flexed, and thus the lower end of the divided tendon is brought up and the two ends are sutured with catgut. In order to prevent too much strain on the catgut sutures, the upper end of the divided tendon, a full centimetre above the point of division, is sewed fast with catgut to the adjoining healthy tendon. In treating the case afterwards, the unaffected fingers are kept in a state of extension, while the affected finger is kept in a state of flexion. This position is to be maintained by means of a plaster dressing.

On some Fatal After-Effects of Chloroform on Children.

Guthrie (*Lancet*, January 27 and February 3, 1894) records nine cases of death and one of dangerous, but not fatal, symptoms after operations, some slight, in which chloroform had been administered to children. The possible causes of these deaths are given as—

(1) Shock with excitement;

(2) Carbolic acid-poisoning in all but two cases;

(3) Iodoform-poisoning in one case, and mercurial poisoning in two;

(4) Pre-existing pathological conditions; and,

(5) The remote effects of chloroform.

In reference to shock, in Case I, only some tendons were divided. In Case II osteotomy of the femur, tibia, and fibula was done. Case IV was osteotomy of both femora. Cases V and IX showed no signs of collapse at the time of operation; symptoms appeared three and eleven hours after its completion. Collapse was present in Cases VIII and X, the former lasting for six days, while the latter recovered. Case VI, excision of knee, Case III, radical cure of hydrocele, and Case VII, suprapubic lithotomy, exhibited shock, but not greater than might be expected. It does not seem reasonable, therefore, to conclude that these deaths were due solely and simply to the severity of the operation.

Pads soaked in 1–20 solution of carbolic acid were used to purify the skin preparatory to operation in all but Cases IX and X. In these two it was only used in the form of strong mixture with which the parts were scrubbed at the time of operation. In Cases II, III, IV, and VIII, carboluria was present at some stage of the case. The symptoms present—wild screaming delirium, restlessness, sleeplessness, and incessant vomiting of peculiar character, are not in accord with the view that the deaths were due to carbolic acid-poisoning. Case VIII, in which iodoform was used, did not present the symptoms of poisoning by that substance. Cases IX and X may have been due to mercurial poisoning, the symptoms in Case IX were those of marked collapse, they appeared eleven and a half hours after the operation, vomiting occurred once, and there was no delirium or screaming. Patient X had bloody diarrhea. Post-mortem examinations showed that in five cases there was fatty degeneration of the liver.

The following conclusions are submitted:

(1) That the deaths in these cases, excepting IX and X, were due to auto-intoxication.

(2) That a fatty condition of the liver, and therefore functional disturbance of the organ, existed before the operation; and,

(3) That chloroform and operation-shock combined aggravated the condition already present, and thus loaded the system with toxic alkaloids, which the kidneys were unable to eliminate.

The practical results of such views are:

(1) That in no case should chloroform be given to patients suffering from fatty liver.

(2) That as it is impossible from physical signs and symptoms to do more than surmise the existence of fatty liver, we must rely on signs of functional activity as indicated by the excess of alkaloidal substances present in the urine; and,

(3) That the precise nature of such alkaloidal substances, and the best methods of detecting them, must be left for further investigation.

In treatment, the use of alcohol and opium were attended with failure, and citrate of caffeine and carbonate of ammonia are suggested as possibly being of service.

Reduction of Cervical Dislocation.

Walton (*Boston Medical and Surgical Journal*, December 7, 1893) gives the case of a boy, aged 10 years, who fell from a shed a week before applying for treatment. The head was bent towards the right shoulder, the face turned towards the left, and the chin somewhat elevated. The position was that of torticollis, but there was no spasm of the sterno-mastoid muscle. He could not voluntarily straighten the head, although it could be forced around, so that the face pointed forward, but immediately relapsed when left to itself. There was a hollow over the spinous process of the fourth or fifth cervical vertebra. Ether was administered, and the vertebra first unlocked by bending the head diagonally backward and towards the left, then rotated into place. No force was required. The hollow over the spinous process disappeared, but no click was heard. Next day all motions were perfect. The plan advocated is: (1) dispensing entirely with extension; (2) using only retro-lateral flexion and rotation. It is a reversion to Hueter's method, with a modification of the direction of the initial movement from simple adduction to retro-lateral flexion. Bilateral dislocations are rare, and here also he advises Hueter's method of attempting to reduce first one articular process and then the other; extension here will also hinder rather than assist. There seems to be little or no risk in attempting reduction, even after a considerably longer period than four months.

Strangulated Hernia.

Gay (*Boston Medical and Surgical Journal*) December 28, 1893, gives some cases which he hopes may direct attention to the importance of giving these cases *early* relief. The vitality of the patient is often much more exhausted than is indicated to the ordinary observer by the general symptoms and appearance. The first patient, a man aged 37 years, had a "compound" hernia. He walked into the accident-room, let down his trousers, and showed a portion of the intestines protruding through the skin. The accident had occurred while lifting, twenty-four hours previously, and the protruding intestine, four inches in length, was covered with a thick layer of dirty, grayish lymph. There was no sign of strangulation. The case was operated on and the intestines replaced. Suppuration occurred, and convalescence, while slow, was satisfactory. The second case, a woman aged 52 years, had a strangulated hernia of a week's standing. There was vomiting, constipation, and pain. The vomiting was stercoraceous. Three and a half inches of the intestine were found to be purple, thickened, and not glistening. It was excised and end-to-end coaptation done with two rows of Lembert's sutures. Everything went well till the ninth day, when peritonitis set in and she died. No autopsy. Another case was that of a man, aged 56 years, operated on in collapse. A very little ether was given, and the bowel found to be covered with thick lymph, threatening sloughing. The constriction was divided, the bowel placed just inside the wound, and the latter packed with baked gauze. The wound was closed with suture in five days, and healed in five weeks. In three cases of gangrenous hernia, operated on while in collapse, the bowel was deliberately opened with a stroke of the knife, and the constriction divided by carrying the herniotome into the lumen of the intestine. Two of these lived a fortnight, and the third recovered. Four additional cases are detailed in which the constriction was above the internal ring. If suspected rupture is accompanied by vomiting, operation is, as a rule, demanded. Save time, avoid shock, preserve the animal heat, and keep the body dry.

Bloodless Amputation at the Hip-Joint by an Old Method.

Buechner (*New York Medical Record,* December 16, 1893) discusses the various operations for amputating at the hip-joint. He claims that the so-called methods of Senn and Wyeth are only modifications of methods already known. The original method is that of Volkmann, so called because the German surgeons ascribe it to him. It is performed as follows: The leg being emptied of blood, an Esmarch tube is applied close to Poupart's ligament and prevented from slipping by twoor three pieces of bandage held by an assistant. A circular amputation of the thigh is made and all vessels secured and the tourniquet removed. The remaining bone is then disarticulated through a long external incision and blunt dissection. He describes an operation which he so performed, which was "as bloodless as any amputation could be." The use of Wyeth's pins he describes as unnecessary in the majority of cases, and quotes Koenig as having spoken unfavorably of enucleation of the bone without the external incision. The operation of Furneaux Jordan differs only from that of Volkmann in first enucleating the bone and then cutting through the limb. The operation of Senn is also said to be practically that of Trendelenburg, only the latter thrusts pins through the wound and compresses the anterior and posterior flaps by means of a rubber tube wound on either side around their projecting ends instead of passing the tube through the wound and thence around the flaps. The mortality of amputations at the hip-joint is given at 55 to 60 per cent. instead of 70 to 90 per cent., as heretofore.

Radical Cure of Femoral and Inguinal Hernia.

Lockwood (*Lancet,* November 25, 1893) describes his method of operating for radical cure in hernia. He bases his opinions on fifty-seven operations, forty-five being non-strangulated. The operation for radical cure is stated to be a great boon, and that in properly-selected cases it gives as good results as do other operations in surgery. In operating for femoral hernia the vertical incision is kept well away from the organs of generation; it extends one inch above Poupart's ligament and two inches down the thigh. The sac is opened, its contents replaced, and then it is twisted and ligated close to the peritoneum with silk tied in a Staffordshire knot. The two ends are then brought out up through the overlying muscles and tied. The femoral canal is closed by one, two, or three sutures passed through its roof and floor; the femoral vein being kept out of the way by the finger.

In inguinal hernia, a straight incision is made, exposing the whole length of the front of the inguinal canal, three-quarters of an inch above and parallel to tne inner half of Poupart's ligament. The greatest care is taken to shun the scrotum. If the sac is a congenital one, or very long, it is cut across opposite the external ring and its lower end dropped into the scrotum. Its upper end is separated from the spermatic cord as far as the peritoneum. It is then pulled down, twisted, and tied with a Staffordshire knot, silk being used. The ends are brought out above through the muscles and tied. The conjoined tendon is then approximated to Poupart's ligament by a couple of sutures. These sutures are passed behind the vas deferens, and when tied pull the conjoined tendon downward and outward behind the cord and restore the back of the canal. The external ring, if required, may be closed a little. When the canal had to be thoroughly opened the operation of Bassini was performed. After operation the patient is kept three weeks in bed, three weeks on a couch, and for six additional weeks is only allowed gentle exercise. The author claims good results for his operations, as the relapses were very few, but the longest cure given is only two years and nine months.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Guaiacol as an Antipyretic.

Da Costa (*Medical News*, January 27, 1894), in a recent clinical lecture, spoke of the value of the external use of guaiacol in the high temperature of typhoid fever. He believes that the antipyretic effect of the drug is less prompt than that produced by the cold bath, but that it is at the same time more lasting than the latter. He prefers it to the use of cold baths when the proper appliances for administering them are lacking, and where movement of the patient is objectionable. The chief drawback to the use of guaiacol is its bad odor; nothing completely disguises it, but the writer states that the best results have been obtained with oil of cloves. To secure the desired antipyretic effect, the guaiacol is rubbed slowly into the skin of the abdomen or thigh with a camel's-hair brush, the part having been previously washed with soap and water. It is advisable to cover the painted surface with a piece of lint and with waxed paper. If, after the application of the guaiacol, gentle friction is made with the hand, absorption takes place in a few minutes. The sensation is likened to that produced by the application of menthol. Thirty drops he regards as the average amount for one application, although he has employed as much as sixty drops. The dose should vary with the height of the fever. With a temperature of 103° F., it should not exceed at first twenty minims. Da Costa believes that the effect is the result of the action of the drug on the heat-centres. Its use is followed by less depression and less sweating than are produced by the older antipyretics,—antipyrin, phenacetin, etc. In no instances did it excite albuminuria. Close examination of the urine is advised, however, after its exhibition.

Stolzenberg (*Berliner klinische Wochenschrift*, No. 5, 1894) has employed guaiacol as an antipyretic in twenty febrile cases, including tuberculosis, pneumonia, typhoid fever, acute rheumatism, and puerperal septicemia. He concludes, that guaiacol, applied to the skin, acts as a prompt and powerful antipyretic; that the initial dose should not exceed thirty minims and the maximum dose one drachm; that the prescribed doses produce no unfavorable influence on the heart, kidneys, or other organs; that larger doses may induce collapse; that since the decline of the fever is attended with profuse sweating, and the subsequent rise with a chill, and since repeated application of the drug exerts a depressing influence, it cannot be recommended for continuous use.

Thayer (*Medical News*, March 31, 1894) concludes from his own experiments and those made by other observers that guaiacol applied to the skin is rapidly absorbed; that the resulting fall of temperature is gradual, the lowest point being reached three and four hours after the application; that the fall of temperature is associated with profuse diaphoresis; that at a variable time, usually shortly after the lowest point is reached, there is a rapid rise in the temperature, usually associated with marked chilliness or an actual chill; that the dose of guaiacol should rarely exceed two cubic centimetres; that similar results are produced by the absorption of the drug through other channels, such as the rectum; that the effect is exactly similar to that obtained by using creosote and carbolic acid in the same manner; that owing to the weakening effect following its continued use, and the chilliness and sweating which it excites, its employment as an antipyretic will probably have but a limited application.

Formaldehyde as an Antiseptic.

Slater and Rideal (*Lancet*, April 21, 1894) have conducted a series of experiments with a view of determining the value of formaldehyde as an antiseptic. This substance is a gas with a pungent odor causing some irritation of the eyes and nose. It is readily soluble in water, forming a clear, stable, practically non-poisonous solution. Like all aldehydes, it combines readily with hydrogen sulphide and with volatile compounds derived from ammonia, and therefore acts as a deodorant. Many writers are agreed in attributing to formaldehyde powerful antiseptic and disinfectant properties. Blum, however, points out that, though in small quantities it arrests growth, it is only after the prolonged action of moderately strong solutions (2 per cent.) that the micro-organisms are killed.

Slater and Rideal confirm Blum's statement. One-per-cent. solutions required less than fifteen minutes to kill the bacillus anthracis and spirillum choleræ; between fifty and sixty minutes to kill the staphylococcus pyogenes aureus, and between forty and fifty minutes to kill the bacillus typhosus. Solutions containing 1 part in 1000 destroyed the bacillus anthracis in thirty minutes, the spirillum choleræ in two hours, and the following in twenty-four hours: staphylococcus aureus, bacillus typhosus, bacillus coli communis, and bacillus mallei. Putrefactive organisms were not destroyed in twenty-four hours by solutions of this strength. In order to determine the effect of formaldehyde vapor, bouillon cultures twenty-four hours old were allowed to dry in a thin layer on sterilized glass slips, and were then exposed to the vapor from five cubic centimetres of a 40 per cent. formaldehyde solution under a bell jar of 3320 cubic centimetres capacity. The organisms killed in less than ten minutes were bacillus typhosus, bacillus coli communis, micrococcus prodigiosus, and spirillum choleræ; after twenty minutes' exposure staphylococcus pyogenes aureus was killed; and after thirty minutes' exposure bacillus pyocyaneus succumbed. Formaldehyde vapor is, then, obviously a powerful disinfectant, and from its harmless character, the freedom from damage of articles exposed to it, and its ready volatility, it would seem peculiarly adapted for the disinfection of rooms.

Inhalations of Peppermint in Phthisis.

Carasso (*Gaz. deg. Ospidal.*, November 2, 1893) announces that Braddon has employed inhalations of peppermint oil in phthisis for the last five years with considerable success. He prescribes it in a mixture containing creosote, glycerin, chloroform, and alcohol, the quantity of the oil amounting to one per cent. Carasso has adopted this plan of treatment in thirty-nine cases of advanced phthisis with abundant muco-purulent expectoration. Good results were obtained in the course of from one to two months. The inhalations were followed by a marked decrease in the expectoration and night-sweats, and a decided gain in flesh and strength. The improvement in the symptoms was attended with a corresponding improvement in the physical signs.

Physiological Action of Amylene Hydrate.

Harnach and Meyer (*Zeitschrift für klinische Medicin*, Bd. xxiv, Heft. 3, 4) conclude that amylene hydrate, like alcohol, first stimulates and then paralyzes all parts of the nervous system. In small warm-blooded animals it produces, according to dose, a fall of temperature amounting to from 4° to 12° C. As the temperature falls the danger of death increases, but the latter is lessened by the external application of heat. A very marked fall of temperature follows when

amylene hydrate is combined with santonin. In man drachm doses may lessen the systolic elevation of the pulse-tracing and cause a disappearance of the dicrotic curve. In warm-blooded animals it causes a continuous fall of blood-pressure. Respiration is at first stimulated and then paralyzed. On striated muscle it has a peculiar effect; the force of the frog's heart is at first greatly increased, but this action is soon followed by irregularity and sudden paralysis. Amylene hydrate antagonizes the tetanizing effect of such drugs as santonin, picrotoxine, and strychnine. When administered by the mouth it lessens the elimination of urea and retards tissue metabolism. Its hypodermic administration is frequently productive of abscess.

Chloroform in Gastric Ulcer.

Stepp (*Therapeutische Monatschrift*, No. 11, 1893) has for many years successfully employed chloroform in the treatment of gastric ulcer. He claims that this remedy acts as an antiferment, and as a mild stimulant to the raw surface. It, moreover, allays nausea, relieves the excessive thirst which follows hemorrage, and prevents a recurrence of the latter by virtue of its styptic properties. He prescribes it as follows:

℞ Chloroform, 1 part.
Water, 150 parts.
Bismuth subnitrate, 3 "
Sig.—One to two tablespoonfuls every hour.

At first a burning sensation is experienced at the seat of the ulcer, but this disappears in the course of a week or ten days. The good effects of the remedy, indicated by an improvement in color and an increase in strength, are recognizable in a few days. The diet under this treatment should consist for the first two weeks of milk, or of milk and tea in equal parts, and toasted bread, in the third week bouillon and an egg may be added, and later digestible meat may be included. Constipation should be overcome by gentle laxatives.

Saline Injections in CO and Coal-gas Poisoning.

Gordon (*Deutsche medicinische Wochenschrift*, March 22, 1894) reports three cases of poisoning, two by CO and one by coal-gas. The first patient was a man, aged 22, unconscious, with stertorous breathing; 300 cubic centimetres of blood were taken from the arm, and 400 cubic centimetres of a 0.6-per-cent. salt solution at 37° C. slowly injected into the veins. The breathing was at first uninfluenced, but later became more quiet. In ten hours he opened his eyes, but remained unconscious during the next day. On the following day consciousness was gradually restored, and in four days he was discharged cured. The second patient was also a man, aged 22; he was similarly treated. Except an improvement in the regularity of the pulse, there was no reaction until the fourth day, from which time he rapidly improved. A similar case, taken from the same house, died at home, no such treatment having been instituted. The third patient was a woman, aged 54, poisoned with coal-gas. When admitted she was comatose, the lips were blue, the breathing was irregular, and the arms and legs were the seat of tetanic spasms. One hundred and sixty-five cubic centimetres of blood were taken from the arm, and 300 cubic centimetres of salt solution were injected. The pulse became stronger, but unconsciousness persisted throughout the following day. By the fifth day she could answer questions, and from this time rapidly improved.

As a result of this treatment it is maintained that portion of the toxic material is removed, that the circulation is maintained, and the nerve-centres protected.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

Fracture of Fetal Bones During Delivery.

Tarnier (*Journal des Sage-Femmes*, April 16, 1894) describes a case of fracture of the clavicle during delivery. The mother had borne ten children; the pelvis was slightly contracted, and the child was presenting in left occipito-transverse position. When dilatation was complete the head receded and the feet prolapsed. The feet were drawn down when the cord was found prolapsed, lying between the legs. It was protected from pressure and then slipped over one foot, so that the fetus would not come down astride the cord. The legs were drawn down, but the arms slipped up during traction. The posterior arm was drawn down without trouble, but the anterior arm proved a difficult task. The operator in working his ring-finger cautiously up the outer side of the arm pressed that finger on the shoulder in order to get a firm but safe hold of the arm. Immediately a sensation was felt as though a bone had broken. The child was delivered and a subperitoneal fracture of the femur was discovered. The corresponding arm was bandaged to the chest, and the child did very well. Tarnier states that the humerus is the bone most frequently fractured during obstetric manipulations. In these maneuvres it must be grasped very carefully between the thumb and the fore and middle fingers. A very little lateral pressure or traction is sufficient to snap a humerus. Tarnier found in delivering dead fetuses that the bone is as brittle as a thin wooden match. He states that he has never broken a fetal humerus involuntarily, the accident only occurring, in his experience, when he had to deliver a dead fetus, so that no special care to save the arm was needed. Next to the humerus the femur is the bone most frequently broken at birth. Fracture of the tibia and fibula are not so frequent; fracture of the clavicle is very rare. Tarnier knows of only one other in his own experience, and in that case the cause of the fracture, which was not detected till a few days after birth, remains a mystery.

A Large Placenta from a Case of Hydramnios.

Dr. J. W. Ballantyne (*Edinburgh Medical Journal*, May, 1894) exhibited at a meeting of the Obstetrical Society of Edinburgh, March 14, 1894, a large placenta from a case of hydramnios which had been given him for examination. The placenta weighed 68.3 grammes, measured 24 x 18 centimetres, and had a maximum thickness of 4.5 centimetres. The cord was 40 centimetres in length and markedly thick. The patient from whom this specimen came was a IV-para. Her first two confinements were at full term, her third at six and a half months, and the present at seven and a half months. In this labor there was considerably more than two quarts of liquor amnii, and, notwithstanding the large size of the placenta, the infant, a male, was small, and died in twelve hours. Unfortunately, no autopsy was permitted. The case illustrated the fact that occasionally hydramnios is associated with and perhaps caused by hypertrophy of the placenta. The placenta itself had apparently a normal structure.

THE MANAGEMENT OF NORMAL LABOR BY ABDOMINAL PALPATION ONLY.

LEOPOLD and SPÖRLIN (*Archiv für Gynäkologie*, Band XLV, Heft 2) call attention to the fact that, despite the introduction of antiseptics in obstetrics, the mortality and morbidity in private practice remain practically undiminished. The cause of this is too frequent and needless vaginal examination. Strict antiseptic precautions they regard as uncertain safeguards against infection, because the vagina frequently harbors pyogenic bacteria, which the examining finger may engraft into the numerous abrasions accompanying every act of labor. This danger is not lessened by the prophylactic vaginal douche. The douche, they reason, does not make the vagina more sterile, but removes the lubricating mucus which shields the tissues and prevents lacerations.

Leopold is an advocate of managing normal labor cases by external examinations only, and he reports 1000 cases in which this method was exclusively used. In 935 of these a correct diagnosis of the position and presentation was made. In the remaining 65 errors occurred, as follows:

Occipito-anterior	971 cases.	54 wrong diagnoses.
Occipito-posterior	6 "	2 " "
Breech	12 "	2 " "
Face	6 "	6 " "
Twins	4 "	1 " "

From this table abdominal palpation might at first sight be regarded as an unreliable method for diagnosis; but the authors claim that in cases in which vaginal examinations only are employed diagnostic errors are even more frequent. Many of those responsible for the above diagnosis had only limited experience with abdominal palpation, and with more practice the errors would have been less frequent.

The methods advocated are divided into four distinct manipulations:

(1) Both hands, slightly flexed, are placed upon the abdomen and gradually carried upward towards the fundus. This shows the size of the uterus, time of gestation, whether the child is in longitudinal or transverse position, and whether the head or breech occupies the fundus.

(2) The hands are placed upon each side of the uterus, then under one hand is felt the arch of the back, under the other the small parts corresponding in position to the abdominal surface of the fetus.

(3) The fingers of the right or left hand are spread as much as possible, and the presenting part seized between thumb and middle finger. If it is round and hard it can only be of the head, which can be grasped like a cannon-ball and moved if above the pelvic brim. The breech is softer, and its surface more irregular. If the outlines of the presenting part are indistinct, placenta previa may be suspected. If no presenting part be felt, then the head must be looked for on either side. This third method is very valuable in all cases in which the presenting part is yet in the entrance of the pelvis.

(4) The accoucheur takes his place at the side of the bed, turning his back to the patient's face. The hands are placed in such a manner upon the abdomen that the fingers are directed towards the cervix. During the intervals between the pains the hands are pressed down deep into the pelvis, and the presenting part is grasped. The head is again recognized by its peculiarities.

Besides these methods of diagnosis the authors point out many aids. Thus it is an erroneous idea that the chin can be made out in ordinary occipito-anterior

positions. What is then felt is the brow. The chin is in close apposition to the thorax, and is entirely out of reach. If the third or fourth method of palpation be practised, the brow is felt upon a higher plane than the occiput. Should this be recognized, the occiput is proved to be the presenting part. The brow is on the same level with the occiput, or lower, in occipito-posterior positions. The close proximity of small parts to the abdominal walls is a good diagnostic aid in these cases. In brow and face positions the distance between the chin and thorax increases, and, of course, is most marked in face presentations. In these cases the occiput is found very prominent, while the examiner's hand can deeply enter upon the opposite side of the pelvis without encountering the brow or the chin.

The authors make an appeal for more attention to this subject, while they still believe that in many cases the vaginal examination will be necessary.

The Treatment of Eclampsia.

Krönig (*Centralblatt für Gynäkologie*, April 21, 1894), in discussing the treatment of eclampsia at the Eleventh International Medical Congress at Rome, stated that as long as so little of the etiology and pathological condition of eclampsia is known, a rational therapeusis cannot be formulated, at present it is limited to the combating of the convulsions. The average mortality by this treatment is from 20 to 30 per cent. He believes that while the convulsions are controlled by narcotics, the eclampsia as such continues to exist. The course of the condition can be unfavorably influenced by large doses of narcotics. In the Leipziger klinik the treatment by morphia has been given up for one and a quarter years. Its place has been taken by forcible delivery in the eclampsia of pregnancy or of labor. In Leipzig to the present time there have been eighteen cases with one death,—*i.e.*, 5.5 per cent. mortality. By the use of this method there are two points especially to be observed.

(1) The controlling of the hemorrhage.

(2) The observance of asepsis.

In two-thirds of the cases there was more or less violent hemorrhage from cervical tears.

The hemorrhage was controlled in all the cases by tamponnade of the utero-vaginal canal with aseptic gauze. The 20 per cent. iodoform gauze advocated by Dührssen should not be used on account of the accompanying kidney complication. For the same reason intrauterine irrigation with antiseptics should not be employed from the diminished excretion by the kidneys of any that might be absorbed. Asepsis must be especially and rigidly observed in this operation. Despite the greatest care, over one-half of the operated cases are infected; the infection limiting itself in the most of the cases to the endometrium. Recovery follows in most of the cases rapidly.

The treatment of eclampsia in the Leipziger klinik is the following:

Narcotism only during the operation.

Forcible delivery.

In threatening edema of the lungs, venesection, abstracting 600 to 800 grammes of blood.

Cessation of Fetal Development following Traumatism.

McArdle (*Dublin Journal of Medical Science*, January, 1893) reports the following interesting case: A woman, at the end of the third month of pregnancy,

sustained, through a railroad accident, a violent blow upon the spinal cord in the lower dorsal, lumbar, and sacral regions. She remained for a long time in bed, complaining of pain in the back, stiffness of the legs, and interference with the functions of the bladder. The pain in the back continued until the confinement, which occurred a short while before the normal time.

The child showed the following abnormalities: Upon the head, only the temporal bones, the supra-orbital portions of the frontal bone, and the basilar portion of the occipital bone exhibited a bony formation; the remaining parts of the brain were covered by thin membrane. In the spinal column, the upper two inches were perfect, in the lower cervical and the upper dorsal the spinal canal was for three or four inches covered by a fluctuating membrane. Though a few normally-closed vertebral arches followed, the remaining lower part of the spinal canal was similarly covered. The right femur was two inches shorter than the left. The stage of the development of the affected vertebræ represented the period of the pregnancy in which the traumatism was suffered.

GYNECOLOGY.

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D., AND CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D., AND H. D. BEYEA, M.D.

The Electrical Treatment of Fibroid Tumors of the Uterus.

W. L. Burrage (*American Journal of Obstetrics*, March, 1894) records his experience of three years in the application of electricity to uterine fibroids, and reports forty cases so treated.

Electricity is not presented by the writer as a specific for these conditions, but as a valuable remedial agent.

It is the author's opinion that, as more knowledge is gained of the nature of these tumors, of the symptoms they produce, and the dangers to the economy from long-continued pressure, and as the technique and mortality of hysterectomy improve, the operation for total removal will be practised more frequently, and will also be done much earlier in the life-history of these growths. A field for the application of electricity is in certain cases where operation is indicated and desired, but in which, from long neglect, the patient is in such poor condition that the operation is, for the time being, contraindicated. The results of operation will be much better when patients are thus prepared for the ordeal.

In those cases where operative measures are inexpedient or are refused, electricity can be frequently employed with great benefit.

In the experience of the author, electricity has proved to be the best therapeutic measure employed in the treatment of fibroid tumors of the uterus, because most tumors so treated do not increase in size, because it is absolutely safe, because it will relieve pain in a very large number of cases, and hemorrhage in some, and because it is sure to improve the general health and strength. In reference to the method of application, the intrauterine application is said to be most advisable.

Permanent reduction in the size of the tumor must not be looked for. Galvanism, vaginal, intrauterine, or by puncture, does not cause abscesses or adhesions.

Galvanism is of no use as a means of diagnosing the presence of pus. The Apostoli method of treatment is absolutely safe. Every case of fibroid tumor of the uterus should be under competent medical observation, because of the danger of malignant degeneration, kidney disease from pressure on the uterus, complication during pregnancy, and the liability of the occurrence of pain and hemorrhage, and functional nervous disorders, especially during a delayed and protracted menopause.

The Mechanism of Complete Procidentia Uteri.

Grace Peckham-Murray (*The American Journal of Obstetrics*, March, 1894) presents some considerations of the anatomy and physiology of the female pelvis in their relations to uterine support, and explains the mechanism of uterine descent. The summary of the paper follows:

I. The pelvic floor has little to do with causing complete procidentia. The proofs of this are: (1) It occurs in children and in young women without so much as destroying the hymen. (2) It is rarely if ever seen in cases of complete laceration of the perineum.

II. The vagina may have both an active and a passive action in producing descent. If the band and levator ani muscle which surround its tube in the lower third is lacerated and its lower portion is still held by the rectum, the muscles surrounding it act with a powerful traction to bring down the posterior wall of the rectum. This traction, with traction of a like nature on the part of the bladder, causes a prolapse of the vagina alone if confined to the lower portion, but when it involves the upper portion, there is dragging of the neck of the uterus, which, if the uterine supports are not lax, results in the great hypertrophy and lengthening of the neck which simulates complete procidentia. (1) If the uterine ligaments are relaxed, the uterus will follow sooner or later. (2) The softening and relaxing of the connective tissue during pregnancy make the detachment of the utero- and vagino-vesical attachments an easy matter, rendering and predisposing to prolapsus. (3) The uterus can press down the vagina before it, making the vagina a passive agent in cases of rapid labor when the os is not dilated and the uterus descends towards the vulva with expulsive force of the third stage; also when it is heavy from lack of involution. (4) The vagina affords support to the uterus by its attachments to its neck; but it is a question whether it acts as a supporting column in the mechanical sense expressed by some writers, and whether the angle it forms with the uterus has a supporting value. Clinical experience shows many cases in which the walls of the vagina bulge and are prolapsed, in which the uterus retains its position, and also many cases, notably cases of congenital retrodisplacements, in which the uterus remains at its normal plane.

III. The action of the ligaments is more passive than active. They are naturally lax owing to the necessity of uterine movements and uterine growth in pregnancy. (1) If traction occurs from below and the ligaments are lax, descent of the uterus is more facile. (2) The importance of the utero-sacral ligaments is exaggerated by most writers. (3) The appearance of the ligaments in cases of prolapse does not show this action; the stretching, breaking, and elongating is the result of the displacement, not the cause. In this respect experiments on the cadaver may be trusted for displacements of the uterus on the normal plane, but not in descent.

IV. The greatest factor to be considered in uterine displacements, and the least understood, is the intra-abdominal pressure. In the normal state there is such an adjustment of this that the uterus is easily maintained in position without much aid from ligament, vagina, or perineum, in spite of weight of abdominal viscera, or the great and constantly-recurring force of expulsive effort. When this equation is disturbed, descent becomes easy. The maintenance of the uterus in proper position is more a question of physio-dynamics than is generally supposed.

V. Owing to laxity of tissues, inherited or the result of disease or subinvolution, there may be a greater predisposition to procidentia uteri. The loss of fat has nothing to do with it,—cases of this nature occurring very frequently in women who have great accumulations of fat in the abdomen and other parts of the body. The shape and inclination of the pelvis may also favor this condition. Some writers think that too much stress is laid upon the effects of pregnancy as an etiological factor. Owing to its relaxing effects on all the ligaments and connective tissue, the heavy uterus of subinvolution, and insufficient care, it can be held responsible for 90 per cent. of the cases.

What are the Indications for a Vaginal Examination?

Edwin B. Cragin (*Medical Record*, March 3, 1894) answers this question under three headings, arranged in accordance with three periods of a woman's life,—*viz.*, The period prior to marriage; married life during the child-bearing period; the period near or subsequent to the menopause. Great discrimination and good judgment must be exercised by the physician in regard to the first period, and exhaustive efforts must be made to discover the cause of disease outside of the pelvis before an examination is decided upon; but if these efforts fail to locate the seat of the disorder, the physician is not only justified in suggesting an examination of the pelvis, but fails in his duty if he neglects this procedure. The changed condition of the woman during the second period furnishes many more causes for disease of the pelvic organs, and necessarily increases the need for an examination of these parts. Pregnancy itself constitutes an indication for a vaginal examination. After labor, and also at the time the parturient is discharged, the doctor should examine by the vagina, and it would be well if it should become a recognized custom to examine such patients about three or four months after labor. At such a time it could be ascertained whether the vagina is intact, the uterus in proper position, whether or not a trachelorrhaphy is required, or a curetting indicated. The condition of the structures about the uterus would also be ascertained at such a time, and any tendency towards disease might by this means be detected and treatment instituted for its control.

With reference to the indication for an examination during the menopause or after that stage has been passed, it is simply necessary to bear in mind the fact that malignant degenerations are prone to manifest themselves at this period of life, and therefore any symptom that is at all suspicious of such a condition, whether it is in the form of pain, irregular discharges, failing health, or other symptoms, constitutes an urgent indication for a vaginal examination. Particularly in patients who have passed the menopause and then experience a bloody flow, not a day should be lost in attempting to arrive at an accurate diagnosis.

PATHOLOGY.

UNDER THE CHARGE OF
JOHN GUITÉRAS, M.D.,
ASSISTED BY
JOSEPH McFARLAND, M.D.

The Implantation of Fresh Cancer-Tissue in the Rabbit's Brain.

Kopfstein (*Wiener medicinische Wochenschrift*, 1893, Nos. 29 and 30) investigated the truth of the statement made by Adamkiewicz that when fragments of carcinomatous tissue were introduced beneath the dura of animals, they promptly succumbed to cancroin-poisoning in from a few hours to three days.

His results were not in accord with Adamkiewicz. The transplantation of the tissue was done under the most strict asepsis in the surgical clinic. The cancer-tissue, still warm, was introduced beneath the dura through a small opening, the bone replaced, and the wound sutured. Fragments of tissue from a mammary carcinoma, from a glandular carcinoma, and from a cancer of the lip were used, and the results awaited while the animals were kept under observation. They did not respond to the operation as Adamkiewicz asserted, but of the nine inoculated animals one died on the third day. Autopsy showed encephalitis, also infection, as the cause of death. Four weeks after the operation, a second became ill, and two days after died of wide-spread, suppurative pleuritis and broncho-pneumonia. The implanted fragments of carcinoma showed a well-preserved stroma and retained epithelial cells. On the periphery, a leucocytic invasion could be made out, so that the tissue had acted only as a foreign body.

Further researches were made: a fragment of carcinomatous tissue being introduced into the parenchyma of the liver. Four weeks after, when the animal was killed, the implanted tissue was found to be completely absorbed.

A cat and a young dog were inoculated in the brain with fragments of a mammary carcinoma, but remained to the time of publication (six weeks) entirely well.

Another cat, also inoculated in the brain, died after three days, of a wide-spread suppuration. Still another cat, into whose liver a large piece of a carcinoma was introduced, has remained well until the publication of the experiments,—a month.

From these experiments the investigator concludes:

(1) That it is possible to bring aseptic inoculations of fresh cancer-tissues in the brains or other organs of various species of animals to a kindly healing.

(2) That the death of animals succumbing to this operation is generally due to sepsis, and accordingly that the toxic effect noted by Adamkiewicz is not due to the specific action of the cancroin, but to encephalitis from infection.

The Use of Various Sputa as Culture Media.

Schmidt (*Centralblatt für klinische Medicin*, 1893, No. 30) suggests a novel and interesting experiment in the way of preparing sputum as a culture medium for the growth of bacteria, especially those peculiar to the respiratory tract.

Pneumonic and mucous sputum were employed, and were mechanically freed of the solid and extraneous materials which they contained. After dispensing in tubes, they were placed in an oven and solidified as well as sterilized by an exposure to 60° C. six times for one hour each. Tracheal sputum becomes watery at

60° C., so must only be heated to 55°. Many times the material refuses to become solid.

When the pneumococcus is planted simultaneously upon agar-agar and the sputum thus prepared, the macroscopic pictures are not found to differ very much, but when a cover-glass preparation made from each is stained and examined, it will be found that those from the sputum are beautifully distinct, with a well-defined capsule, while those on the agar-agar are indistinct, small, and without the capsule.

Rhabdomyoma.

Stittmann (*Münchener medicinische Wochenschrift*, 1893, No. 52) exhibited to the "Aerztl. Verein München.," 8, xi, 1893, a man, aged 60 years, who had sustained a trauma of the right upper arm forty-two years before. At present a tumor the size of a man's fist occupied the side of the biceps muscle, to which it was connected by a narrow bridge. It was covered with normal skin. The nature of the tumor was shown to be striated muscle by electric stimulation of the musculo-cutaneous nerve.

The Mixed Infection of Phthisis.

Jakowski (*Centralblatt für Bakt. und Parasitunk.*, 1893, Vol. xiv, No. 23, p. 762) observed that while most authorities seemed satisfied that the hectic of phthisis was associated with the entrance of micro-organisms into the blood, and that the entrance of pyogenic organisms into the partly-destroyed tissue of the tuberculous areas, yet nowhere could he find that these things had been proved.

Jakowski observed nine cases during the hectic period, and, having carefully disinfected the middle finger, extracted a few drops of blood with which he prepared cover-glasses, agar-agar, and gelatin tubes. The results of the experiments were interesting, and confirmed the suppositions of his predecessors. In two cases he found the staphylococcus pyogenes aureus; in three this organism in combination with others,—twice with staphylococcus albus and once with streptococci; twice he found streptococcus pyogenes alone, once with staphylococcus pyogenes aureus. The bloods which he examined never showed the pneumococcus of Fränkel, as Marfan had observed.

Treatment of Typhoid Fever with Sterilized Cultures of Bacillus Pyocyaneus.

Rumpf (*Deutsche medicinische Wochenschrift*, 1893, No. 41). The observer prepared cultures of bacillus pyocyaneus in thymus-bouillon, and, after having allowed them to develop well, sterilized them by heating to 60° C. With a hypodermic syringe, beginning with 0.5 cubic centimetre and daily increasing 1.0 cubic centimetre, 2.0 cubic centimetres, 4.0 and 6.0 cubic centimetres, the sterile material was injected into the gluteal region. The result was reduction of the temperature, diminution of the frequency of the pulse, and sweating. Only one case showed unfavorable symptoms, such as a chill and increase of the temperature. The respiration, the cardiac energy, and the kidneys were not affected. In almost every case an immediate improvement could be observed, so that the patients speedily recovered from the somnolence and delirium. The cases which came under observation early were more easily influenced than those which had persisted for some time. Out of thirty cases treated in this manner, only two terminated fatally,—one from hemorrhage and one from pneumonia.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

ASSISTED BY

M. B. HARTZELL, M.D.

Xeroderma Pigmentosum.

Schutte (*Berlin Med. Soc.*, June 14, 1893, from *Journ. Mal. Cut. et Syph.*, November 13, 1893) presented three children of the same family attacked with the rare disease, xeroderma pigmentosum, showing various symptoms according to the age of the patient and period of the disease. Dark pigmentation of the face was first observed, then occurred atrophy with parchment-like skin, and finally formation of malignant tumors. There were no antecedents in the family. The parents and two sisters were exempt. All therapeutic attempts failed. The general health was good. Two younger sisters showed the initial symptoms of the affection.

Electrolysis in Acne Vulgaris.

Roberts (*British Journal of Dermatology*, May, 1894) has employed electrolysis with favorable effect in the treatment of acne. A fine needle connected with the negative pole was inserted deeply into the centre of the nodule, while the patient grasped the positive pole. A current strength not exceeding three milliampères was used, and the needle was allowed to remain until a white ring formed around it. In the case of large nodules two or three settings may be required to remove them.

Aluminol.

Heinz and Liebrectre (*Journal of Cutaneous and Genito-Urinary Diseases*, May, 1894, from *Berliner klinische Wochenschrift*) find aluminol possesses a marked antiseptic and astringent action. Chotzen used it in powder, solution, spirit, ointment, plaster or oil, with benefit in ulcers, parasitic and microbic diseases, psoriasis, prurigo, eczema, and lupus. In a solution (from 1 to 20 per cent.), used as an injection in the male, it is said to be "almost a specific in gonorrhea"

Benzoin in Seborrhea and Eczema.

This drug (*Journal of Cutaneous and Genito-Urinary Diseases*, May, 1894, p. 228), in the form of the compound tincture, either in combination in ointment, or pure, has been found of service in seborrhea, eczema, and also in chronic eczema of the eyelids and lips.

The Etiology of Lichen Urticatus.

Barendt (*Liverpool Medico-Chirurgical Journal*, January, 1894) is of the opinion that the exciting causes of lichen urticatus are fleas and bugs, the predisposing cause being hot weather, which produces a pruriginous state of the skin. The eruption characteristic of the disease is the result of scratching, being found only on parts accessible to the patient's nails.

The Comparative Value of Lanolin and Adeps Lanæ as Ointment Bases.

Rothmann (*Berliner klinische Wochenschrift*, March 12, 1894), in a series of cases of eczema treated with lanolin and adeps lanæ for the purpose of determining the comparative value of these two substances as ointment bases, found that the latter was more or less irritating to the skin, this irritating property being due probably to a small amount of chlorine which it contains.

Arsenic in Herpetic Eruptions.

Hutchinson (*Archives of Surgery*, July, 1893) believes that this drug exercises a distinct controlling effect in recurrent herpes, and also that it is of service in "herpetiform pemphigus" [dermatitis herpetiformis (?)], citing a case of four years' duration in which it checked the attacks immediately, and after perseverance for two years produced a cure.

Treatment of Urticaria.

Mackenzie (*British Journal of Dermatology*, March, 1894) considers the nature of this disease, citing a case of urticaria pigmentosa, and gives his personal experience with remedies for urticaria in general. In obstinate cases the skin must be soothed and, if possible, the excitability of the nerve-plexuses lessened. A nightly warm bath, to which is added starch or potassa-sulphurata, two ounces to thirty gallons of water, is often of much service, after which a lotion of carbolic acid and water or a 2-per-cent. salicylic acid petrolatum ointment may be used. In urticaria gigas the most benefit is derived from glycerin of lead, one ounce to twenty of water. Internally antipyrin, twenty or thirty grains at bedtime, and in chronic cases repeated every night, are useful; also atropine, in solution and in doses of 1–120 to 1–100 of a grain; and pilocarpine is of some advantage in urticaria pigmentosa.

A Special Method of Applying the Thermo-Cautery in the Treatment of Certain Cases of Lupus Vulgaris.

Taylor (*Liverpool Medico-Chirurgical Journal*, January, 1894) calls attention to the employment of the thermo-cautery in a special way in the treatment of lupus vulgaris. The patch of lupus tissue is circumscribed by a series of punctures, made with the needle cautery, close enough together to make a continuous line about the advancing margin. The patch itself is then stroked with the button cautery at a white heat. The author claims for the thermo-cautery the power of reducing the vascularity of the part to which it is applied in addition to the destruction of tissue.

Lupus Erythematosus as an Imitator of various Forms of Dermatitis.

Crocker calls attention (*Journal of Cutaneous and Genito-Urinary Diseases*, January, 1894) to the frequency with which lupus erythematosus imitates the various forms of cutaneous disease, rivalling syphilis in this respect. He reports a group of cases in which it imitated erythema in a papular, nodular, and diffuse form; psoriasis guttata; lichen planus in patches; lupus vulgaris in multiple single nodules or groups of nodules, persistent telangiectasis of the cutaneous vessels of the malar eminences, and a special capillary nevoid form.

MISCELLANEOUS.

THE COMMENCEMENT EXERCISES OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.

THE 120th Annual Commencement of the Medical Department was held at the American Academy of Music, Thursday, June 7, 1894, at 12 o'clock noon. The retiring Provost, Dr. Pepper, conferred degrees on 199 candidates of the Medical Department, 65 of the Dental, and 22 of the Veterinary Department. The Valedictory address was delivered by Dr. Louis A. Duhring, Professor of Skin Diseases.

The following prizes were awarded to members of the graduating class in medicine:

(1) The Alumni medal, offered by the Society of the Alumni of the Medical Department of the University to the member of the graduating class who attains the highest general average in examinations, to Hubert A. Royster, of North Carolina.

(2) The prize of $100, offered by an Alumnus to the member of the class graduating in June, 1894, who presents the best thesis descriptive of original research in physiology, to George B. Wood, of Pennsylvania.

(3) The prize of $100, offered by a friend of the University to the member of the graduating class passing the best examination in obstetrics, to W. Hersey Thomas, of Pennsylvania, with honorable mention of George N. J. Sommer.

(4) The prize of $50, offered by an Alumnus to the member of the class graduating in June, 1894, who attains the highest average in the examination in pathology, to Alonzo E. Taylor, of Iowa.

(5) The prize of an obstetrical forceps, offered by the professor of Obstetrics to the member of the graduating class furnishing the best report of a case of obstetrics in the University Maternity Hospital, to Henry Page, Jr., with honorable mention of Charles N. B. Camac.

(6) The prize of a Thoma-Zeiss blood-counting apparatus and a Fleischl's hemometer, offered by the professor of Clinical Medicine for the best report of his clinic during the session, to Henry Page, Jr., of Maryland, with honorable mention of John R. Knapp, Edward B. Scheirer, and Hubert A. Royster.

(7) The two prizes—a surgical pocket-case and a copy of Osler's "Practice of Medicine"—offered by the professor of Clinical Surgery for the best reports of his clinics during the session, the first to Edward A.

Shumway, of Pennsylvania, and the second to Joseph W. Brandon, of Pennsylvania.

(8) The prize of a copy of Treves's "Operative Surgery," offered by the professor of Clinical Surgery to one member of each of the four Surgical Ward Class Sections for reports of that service, to Henry Page, Jr., for the report of the work of Ward Class C, with honorable mention of Arthur W. Booth and Archie L. McKinley, Jr.

(9) The Dr. Louis J. C. Kimmell prize of an antiseptic minor operating case, offered to the student who presents the best thesis on a surgical subject, to Arthur W. Booth, of New York.

(10) The prizes offered by the Demonstrator of Surgery for proficiency in fracture dressings, operating and bandaging, a pocket-case of instruments to a student of the first-year class, a pocket-case of instruments to a member of the graduating class, to James W. Wister, of the first year class, with honorable mention of James R. Mossgrove, Jr., and William C. Smith, and to Charles W. Higgins, of the graduating class, with honorable mention of Henry C. Fish and Frank B. Swartzlander.

(11) The prize of a copy of Ashhurst's "Surgery," offered by the Demonstrator of Osteology to the member of the first-year class who passes the best examination in osteology, to Ira D. Shimer, of Pennsylvania, with honorable mention of Norman Roberts and Ralph Stubbs.

(12) The prize of a case of autopsy instruments, offered by the Demonstrator of Morbid Anatomy for the best report of autopsies, to Joseph W. Brandon, of Pennsylvania, with honorable mention of John F. Critchlow.

(13) The prize of a hemocytometer, offered by the Instructor in Clinical Medicine to the member of the first-year class who presents the report of the lectures on physical diagnosis, to Clarence W. Willé, of Pennsylvania, with honorable mention of Frederick S. Kellogg and M. Arnold Morin.

(14) The prize of $20, annually offered by the D. Hayes Agnew Surgical Society for the best anatomical preparation made in the dissecting-room, to be deposited in the Wistar and Horner Museum, to Henry L. Williams, of the second-year class, and Ira A. Shimer, of the first-year class, for their joint preparation, with honorable mention of George L. Ray, of the second-year class, and T. T. Thomas of the second-year class.

(15) The Joseph Zentmayer prize of a histological microscope, offered by the successors of Joseph Zentmayer to the student passing the best examinations in histology and embryology, the average to be made from the combined marks of the separate examinations on these

branches, to Samuel Z. Shape, of Pennsylvania, with honorable mention of Colin R. Clark.

In the Department of Veterinary Medicine the following prizes were awarded:

(1) The J. B. Lippincott prize of $100 offered to the member of the graduating class who, in the three years spent in the Veterinary Department of the University, attains the highest general average in examinations, to Thomas Castor, Jr., of Pennsylvania.

(2) The prize of an écraseur, offered by a friend of the department to the student obtaining the highest mark in the examinations in veterinary anatomy, to Ulysses G. Houck, of Pennsylvania.

PROFESSOR GEORGE S. FULLERTON ELECTED VICE-PROVOST OF THE UNIVERSITY OF PENNSYLVANIA.

At a recent meeting of the Board of Trustees of the University of Pennsylvania, Dr. E. Otis Kendall, resigned, was elected Honorary Vice-Provost, and Professor George S. Fullerton, Vice-Provost and Dean of the College Department.

Mr. C. C. Harrison, Acting Provost, announced that funds had been secured for the purchase of a bust of Dr. Joseph Leidy by the sculptor, Boyle, which will soon be completed.

BOOK NOTICES.

An Illustrated Dictionary of Medicine, Biology, and Allied Sciences. Including the pronunciation, accentuation, derivation, and definition of the terms used in medicine and the allied sciences. By George M. Gould, A.M., M.D., Author of "The Student's Medical Dictionary;" "12,000 Medical Words Pronounced and Defined;" "The Meaning and the Method of Life;" Editor of the "Medical News;" President, 1893–94, American Academy of Medicine; one of the Ophthalmologists of the Philadelphia Hospital. Philadelphia: P. Blakiston, Son & Co., 1894.

The first thought that naturally arises when we open a new book is what justification has it for its appearance? In answer to this, in the present instance, let us ask the following: What physician has not been repeatedly vexed within the past decade by failing to find some new and important term in his medical dictionary? What student of medicine during this time has found his dictionary abreast with his text-books? We venture to say none.

There are periods in the history of the development of every science, when, owing to the number and the importance of the advances made, the subject must be rewritten. So, also, there are periods when the lexicographer must rebuild his work. In medicine, the present is

such a time. The past few years has witnessed an unprecedented activity in every department. Pathological changes in the body, heretofore unknown, have been discovered, new operations devised, and new terms coined to describe them. Need any apology be offered, therefore, for the appearance of a new medical dictionary at this time?

The present work is not a revision or a compilation of a previous work, but is entirely new, and is the result of a careful gleaning by the author and a corps of assistants of the living literature of the day.

The objects which the author has sought to accomplish were briefly, (1) The inclusion of the many thousands of new words and terms that have been introduced into medicine during the last few years. (2) To give the most complete epitomization of the works of older and authoritative lexicographers. (3) To include all the more commonly used terms in biology. (4) Keeping the size and purpose of the book well in mind, to give it an encyclopedic character,—not only by supplying the usual pronunciation, derivation, and definition of words, but also by showing their logical relations, their bearings, and their practical importance for the worker in literary or clinical medicine. (5) When advisable, to give a pictorial illustration. (6) To cast the influence of the work, in doubtful or disputed cases, in favor of a more consistent and phonetic spelling. (7) To indicate the best pronunciation of words by the simplest and most easily-understood method.

In scanning through the book with these in mind, we can but say that the work seems to have been well and thoroughly accomplished. The spelling of hemorrhage, orthopedic, etc., with the single "e" instead of with the diphthong will probably seem to some a little radical. It is, however, in line with progress, with the teaching of the leading philologists, and with the most recent and authoritative popular dictionaries.

In addition to furnishing concise and accurate definitions and pronunciation, upwards of 100 tables have been included, in which is classified an immense number of facts collected from various sources. Many of these have been prepared especially for this work, and are not to be found elsewhere. Space will permit us to mention but a few of them. We note a complete table of arteries, giving the origin, distribution, and branches of each; a table of bacteria, covering thirty closely-printed pages, and beyond doubt the most complete to be found anywhere; a table showing the expectation of life; a complete table of muscles, giving the origin, insertion, innervation, and function of each; a complete table of nerves, giving the function, origin, distribution, and branches; a table of parasites, covering forty-three pages, and like that of bacteria, the most comprehensive yet collected; a table of tests, embracing thirty-nine pages, giving, beside the name of the test, reagents employed, characteristic reaction, application, and remarks; a table of stains and microscopic technique, covering thirty-seven pages, etc. The other tables, while not so large, are correspondingly as complete and valuable.

Although the work is so comprehensive, by rigidly economizing space, this vast amount of information has been compressed within the limits of one volume of convenient size for handling. We have no hesitation in stating that more useful information is contained in this book than in any other one-volume medical work in the English language, it would probably be safe to say in any language.

While errors are inseparable from human effort, a considerable search failed to disclose any of moment.

No argument need here be advanced of the value of a good dictionary. In the one under review, the student of medicine, of dentistry, of veterinary medicine, of biology, of bacteriology, etc., will find an invaluable companion in his reading.

From an artistic stand-point, the work is as distinctive as it is in literary merit. The paper is of fine quality, the type and engravings sharp and clear, and the press-work is of a high order. A very valuable feature, and one that will be much appreciated, is that the book opens perfectly flat, and remains open at any point. A useful index refers one to special tables at once, without loss of time.

AN AMERICAN TEXT-BOOK OF THE DISEASES OF CHILDREN. By American Teachers. Edited by LOUIS STARR, M.D., Physician to the Children's Hospital and Consulting Pediatrist to the Maternity Hospital, Philadelphia; Late Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania, etc. Assisted by THOMPSON S. WESTCOTT, M.D., Attending Physician to the Dispensary for Diseases of Children, Hospital of the University of Pennsylvania; Physician to the Out-Patient Department, Episcopal Hospital; Fellow of the College of Physicians of Philadelphia. Philadelphia: W. B. Saunders, 925 Walnut Street, 1894.

The present work, an 8vo volume of nearly 1200 pages, represents the united efforts of sixty-three collaborators from the most important medical centres of the country. Whatever may be the disadvantages of an encyclopedic text-book, and they are not few, the production is stamped by a certain broadness and freshness rarely observed in large works by single authors.

As an introduction, the editor contributes an admirable chapter on the Clinical Investigation of Disease and the General Management of Children. Among other articles of special interest may be mentioned The Chemistry of Milk and of Artificial Foods for Children, by Albert R. Leeds, Ph.D.; Injuries Incident to Birth and Diseases of the New-Born, by Edward P. Davis, A.M., M.D.; Tuberculosis, by William Osler, M.D., M.R.C.P.; Cholera, by E. O. Shakespeare, M.D.; Diarrheal Diseases, by Victor C. Vaughan, M.D.; Vesical Calculus, by J. William White, M.D.

The classification of malaria under the non-infectious diseases is a faulty one, all the more noticeable since the writer in the initial paragraph of his paper speaks of the disease as being of a specific infectious origin. The old-time classification of diarrheal diseases into enteritis, cholera infantum, and entero-colitis has been dispensed with; the first is described as intestinal indigestion, the second as acute milk infection, and the third as subacute milk infection. In the treatment of acute milk infection the author wisely advocates the complete suspension of milk in all forms as an article of diet and the prompt resort to irrigation of the stomach and intestines, the condition being regarded

as analogous to that resulting from the ingestion of an irritant poison. After carefully weighing the advantages and disadvantages of the various operations recommended for vesical calculus, the writer concludes that in every case of calculus in male children litholapaxy, on account of ease of performance, low mortality, speedy recovery, and absence of danger of emasculation, should be the operation of predilection. The volume closes with very practical papers on Diseases of the Skin, by W. A. Hardaway, M.D.; Diseases of the Ear, by B. Alexander Randall, A.M., M.D.; and Diseases of the Eye, by G. E. de Schweinitz, M.D.

Notwithstanding the large number of contributors, there is marked unanimity throughout the work, and but little repetition. While some articles are disproportionately condensed, nothing of importance seems to have been omitted. The text is profusely interspersed with wood-cut, half-tones, and colored plates, which, with few exceptions, are very good; the exceptions being among the colored plates, two or three of which are extremely poor, notably the one opposite page 1092, intended to represent tinea favosa.

As a whole, the work will prove a valuable addition to the literature of pediatrics. We heartily commend it to the profession as a clear, concise, and practical exposition of the subject.

LECTURES ON AUTO-INTOXICATION IN DISEASE, OR SELF-POISONING OF THE INDIVIDUAL. By CH. BOUCHARD, Professor of Pathology and Therapeutics, Member of the Academy of Medicine, and Physician to the Hospitals, Paris. Translated, with a Preface, by THOMAS OLIVER, M.A., M.D., F.R.C.P., Professor of Physiology, University of Durham; Physician to the Royal Infirmary, Newcastle-upon-Tyne; and Examiner in Physiology, Conjoint Board of England. In one 8vo volume; 302 pages. Philadelphia: The F. A. Davis Co., 1894.

The subject of auto-intoxication is at present attracting so much attention that a contribution to its literature from a pioneer in this department of pathology must needs be welcome. The volume contains thirty-two lectures which deal mainly with the following subjects: The toxicity of urines, pathogenesis of uremia, gastro-intestinal, auto-intoxication, as produced by constipation, indigestion, gastric dilatation, and typhoid fever; intestinal antisepsis, pathogenic therapeutics of typhoid fever, auto-intoxication of bile, poisoning accidents of diabetes, cholera, and the general therapeutics of self-poisoning. These subjects are of every-day interest to the general practitioner. Putrefactive processes in the intestinal canal and the development of physiological and pathological alkaloids play an important part in many diseased processes until lately unknown or misunderstood. As the translator says in his preface, Bouchard clearly indicates to us that man is constantly standing, as it were, on the brink of a precipice; he is continually on the threshold of disease. Every moment of his life he runs the risk of being overpowered by poisons generated within his system. Self-poisoning is only prevented by the activity of his excretory organs, chiefly the kidney, and by the watchfulness of the liver,

which acts the part of a sentinel to the materials brought to it by the portal vein from the alimentary canal. The most instructive chapters are those devoted to toxicity of urines, typhoid fever, and cholera. The book is written in a very attractive style, and the careful reader will not only possess himself of important facts concerning the pathogenesis of disease, but will derive many useful hints as to treatment. The translator deserves especial credit for rendering easy access to the writings of the distinguished author, and also for the manner in which he has accomplished the task.

A Text-Book of the Diseases of Women. By Henry J. Garrigues, A.M., M.D., Professor of Obstetrics in the New York Post-Graduate Medical School and Hospital, etc. Philadelphia: W. B. Saunders, 1894.

In the present day, when books are being rapidly multiplied, a work must have distinct merit or its author cannot hope for a success which shall be either gratifying or permanent. There is no lack of books which cover the ground treated by Dr. Garrigues, but in spite of this fact we believe that no apology is needed for the existence of this work. It occupies a position between the elementary text-book and the encyclopedia. Being designed particularly for the advanced student and the general practitioner, the various subjects are treated in a concise but eminently practical manner. The questions of examination of diagnosis and treatment are minutely considered, which thus makes the book one of the best practical guides with which we are familiar. The matter is quite up to date, and is presented in a general and a special division. The first includes embryology and physiology, and general considerations on etiology, examinations, and treatment. The special division considers the various diseases included under gynecology. Particular care has been given to describing and illustrating the various operations in minute detail. This will be much appreciated by those who are not specialists in giving a clear idea of the technique.

The author displays an intimate practical knowledge of the subject, and presents it in a clear and concise manner.

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UNIVERSITY OF PENNSYLVANIA PRESS,
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UNIVERSITY
MEDICAL MAGAZINE

AUGUST, 1894.

VALEDICTORY ADDRESS TO THE GRADUATING CLASSES IN MEDICINE, DENTISTRY, AND VETERINARY MEDICINE OF THE UNIVERSITY OF PENNSYLVANIA.[1]

By Louis A. Duhring, M.D.,

Professor of Skin Diseases.

Gentlemen: To address you this day, a day to which you have all looked forward with mingled feelings of anxiety and pleasure, is an honor of which I am deeply conscious. The weeks, months, and years have gone by until this hour finds you in the realization of your brightest hopes. With the impressive function just performed by the Provost of the University of Pennsylvania, some of you have become Doctors in Medicine, some Doctors in Dentistry, and others Doctors in Veterinary Medicine. In behalf of my colleagues, members of the several faculties, I congratulate you upon the successful termination of your studies.

As you go forth into the world, cherish kindly sentiments towards your former instructors, and be assured that they at all times endeavored to do their duty towards you, collectively and individually. But above this, prize zealously the good name of the great institution of learning which is inscribed on the diplomas you have just received. Through the years to come, remember with the warmest feelings the University of Pennsylvania. The name, in itself suggestive of dignity and strength, stands as a symbol for learning, knowledge, and enlightenment in their broadest acceptance. The University of Pennsylvania is established upon lines so wide and far-reaching that it is an integral part of the mental life of this great Commonwealth. It is, verily, a State University. Its foundation rests upon the rock of unbounded

[1] Delivered June 7, 1894.

faith in the development of the mind and all that pertains thereto; upon the belief that advanced education is a blessing for the people, for the masses, as well as for the favored few. Under the generous and wise government of the Provost, the policy of administration has been so enlarged of late that its beneficial influence as a mighty educational factor is felt not only in this city and State, but throughout the country.

It is a priceless boon to have been graduated from this venerable and renowned institution, upon the pages of whose archives are to be found so many worthy and illustrious names. Not to go back further than within the recollection of many of us assembled here to-day, the well-spent lives of George B. Wood, Hugh L. Hodge, William Pepper the elder, Joseph Carson, Henry H. Smith, Francis Gurney Smith, Robert E. Rogers, D. Hayes Agnew, and Joseph Leidy are distinguished examples. The bare mention of these familiar and honored names is suggestive of mental power and greatness. They stand as silent emblems of unswerving devotion to medical science and to the University, as representatives of the most elevated expression of scientific medicine. But there is another and longer list, also worthy of the highest consideration, upon the pages of which *your* names have to-day been written. I refer to the Alumni, comprising now a great and noble body of men, the individuals of which are to be found throughout every State in our country.

I trust, gentlemen of the classes of 1894, you will ever consider it a privilege to have studied under the auspices of the University of Pennsylvania. It is to be hoped that you may contribute much to her reputation and future prosperity. It is within the power of each of you to aid materially the cause of thorough and advanced education, especially by directing the footsteps of the young men with whom you may come in contact. Point out to them the schools and universities in our land where they are likely to receive the highest and best instruction. In after years they will be ever grateful to you for the counsel you gave them. The tendency of the day is distinctly onward; there is scarcely time to pause; and the Alumni are looked to for encouragement and moral support, as from time to time momentous steps are taken by the Faculties and Trustees. The University is ever ready to perform her duty to those who enroll themselves as students; and she trusts that her Alumni, in turn, will ever hold in mind their Alma Mater.

Much is expected of you by your former teachers. You have had the best opportunities. The course of studies just completed has been as practical, scientific, and thorough as the time occupied permitted. With all respect for your present acquirements and knowledge, how

ever, you have still much to accomplish. To learn, to acquire useful knowledge, is to pursue an ennobling life. To study thus is not merely a pleasure and satisfaction, but is also a lofty expression of human existence. You are just about to begin your substantial lives. The world is before you. See to it that proper use is made of opportunities, and that good resolutions materialize into honest, scientific, and practical work. The portals of science await your entrance; they are always open to those who would enter with the proper spirit. With science there is no sham. She tolerates no affectation; she abhors charlatanism. To ignorance she appears severe, stolid, Sphinx-like, but to knowledge, when becomingly approached, she extends a welcoming hand. She unobtrusively invites the student, but is precise and exacting, favoring only those who are faithful devotees.

Of all studies, those that have a scientific basis yield in the end the most satisfaction. In this epoch, the methods for the scientific pursuit of the medical sciences are far more numerous than they were a quarter of a century ago. At that time the use of the microscope was limited, comparatively speaking, to a few. To-day the instrument is placed in the hands of the student early in his studies, and it is expected of him to become familiar with it, if not skilled in its use. Instruments of precision now play a much more important part in the daily routine of the physician than they did formerly. They teach much that has a direct bearing on the treatment of disease. The time has arrived when medicine with its collateral branches, thanks to precise work, is beginning to take a place among the exact sciences. Each decade notes distinct advances made in this direction. The labors of investigators in particular fields of research are rapidly bringing together exact information, and, what is of great significance to the world, this knowledge is being applied to the daily needs of life. It is the distinctly practical turn which knowledge has taken latterly that is so encouraging to the scientist. He sees on all sides that the people are being benefited in many ways by the results of his labors. In this observation he finds the stimulus to further research, and at the same time his reward.

Doctors in Medicine, you have chosen a calling that in the eyes of the world, and especially of your fellow-countrymen, is pre-eminently respectable and estimable. In no other country in the world is the medical profession regarded with so much respect and appreciation as in our own. It is, moreover, a dignified profession, made so by the very nature of the duties the physician is called upon to perform. The conditions under which medical adviser and patient meet, demand decorum and dignified action on the part of both. Like the ministry, the medical profession is a serious vocation. It is not to be entered upon lightly, much less to be practised in that strain. The physician

is brought daily face to face with distress of mind as well as of body. Often one will be found to depend on the other. He is called hourly to give advice, which should in all cases be offered discreetly and with due regard to circumstances.

Live in the hope that a future filled with professional honor, if not distinction, awaits you in due season. With health, moral strength, ambition, a sense of duty, and faithful work, there is opportunity for all to occupy honorable positions. Some may ask, How is this to be accomplished? The answer is not difficult. Perform loyally, as upright men and conscientious physicians, the duties which present themselves. Be true to your profession. Regard it as a profession. Never permit yourselves even to think of it as a trade. Bear in mind, always, that the practice of medicine is a sacred trust, placed in your hands by the patient. In receiving the title of Doctor in Medicine you assume all the responsibilities belonging to a profession, and they are infinitely greater than can pertain to a trade. They are more circumstantial and less defined, and are often intimately associated with questions of right and wrong. The required dose of physic or the amputation of a hopelessly shattered limb admits of no discussion. The exigencies of the case and the duty are plain. But questions of an entirely different character are also continually being presented to the physician, some of which call for the exercise of the highest attributes of mankind, among them moral courage and judgment. The first of these should be an integral part of every man; the latter is a most valuable endowment to character. Need I speak of the untold misery that is daily, hourly suffered through errors of judgment? While sound judgment is not given by nature to all, it should be constantly cultivated, for to a considerable extent it may be acquired.

Do not forget that the making of your character, of your life, is largely in your own hands, and that as you begin your professional career, so it is likely to continue. You have it in your own power, each of you, to be a distinctive force for good in the community in which you reside. Never lose sight of the ethical, moral nature with which man is endowed. Encourage this faculty, cultivate it assiduously. It is a great, a mighty factor for good in the world. Morals are the chains which hold in control the conflicting forces in man's nature. Without the exercise of this restraining function, communities and nations could not continue to exist. They would be consumed by the very vigor and power that are contained within them.

In practice you are expected to be counsellors as well as physicians; it is part of your function to advise calmly and wisely in hours of trouble and anxiety. You must prove to be the friend as well as the doctor to the distressed and afflicted. Be sincere in your language

to patients, and never be hasty nor over-confident in your opinions and statements. Reflect well before expressing a medical opinion that may involve the welfare and happiness of others. The injury that may be done to others, as well as to yourself, by a hasty or an untimely expression may prove lasting.

Keep in mind the practical value of that delicate quality called tact, the power of adapting one's words or actions to circumstances. For the individual who possesses this virtue, the rougher paths of life are made comparatively smooth and pleasant. Like many other desirable qualities in which one may be deficient by nature, it may be cultivated, and its acquisition is well worth the effort.

Regard highly the respect and good opinion of your professional brethren, and be just to them on all occasions. Look to them rather than to the laity for the moral support that all need at times. Encouraging words from our superiors and peers are oftentimes as substantial food, strengthening and helping us onward. Be contented to do your professional duty as it may come to you. Never make an effort to secure practice except through legitimate channels. These, whether in the country, town, or city, are clearly defined to him who is not wayward or blind to ethics. To know what is becoming, the physician imbued with a sense of honor needs no written code. He will in all cases do what is proper and just, doing to others as he would be done to by them.

The field of medicine yearly grows and widens. Latterly it has expanded so vastly that the minds of even the strongest men are unable to assimilate all that is being evolved from the abundant mass of accumulated material. Division of labor in the world of disease, as in the other spheres of life, has become a necessity; hence the importance of medical men availing themselves of the experience of their fellow-workers in other departments is obvious. Never indulge the sentiment that it is beneath your professional standing to consult with any qualified practitioner. There is danger in such a sentiment, and the danger is for the patient. The malady may be so potent or so insidious and obscure as to baffle you single-handed. As every medical man of large experience knows, a favorable turn in the course of a disease is occasionally determined by some decisive step. The right action at the proper time, whether it refers to a capital operation or to a dose of some powerful drug, often seems more distinctly indicated after consultation than before. Remember that the sufferer is entitled to every aid and suggestion that can be obtained, and that in the event of a fatal issue the blame of not seeking consultations with more experienced heads may rest upon you. Keep in mind that some one else may possess experience, skill, or knowledge that you do not happen to have.

These thoughts naturally lead to the subject of specialism in medicine.

What constitutes specialism, broadly and correctly interpreted? A specialty is a department or branch of medicine in its widest sense; it is what a limb of a tree is to the trunk. Without the trunk there can be no limbs nor branches; without general medicine there can be no legitimate specialties. To be genuine, a specialty must be supported by a full understanding of the principles and practice of medicine. No medical man is fitted to be a special observer who is not qualified in general medicine, and under this head must be included general pathology. Without a knowledge of the latter science, especially in its practical bearings, we are wholly unfit to practise. It will, therefore, be noted that much is required of the physician before he can be entitled to be considered a specialist.

The pursuit of a specialty incites to study and research. It tends to reveal new paths and fields. It opens vistas of knowledge that were not before thought of. Under culture the subject grows and develops, in some instances it would seem almost without limitation. What is the effect on the profession at large? Is it beneficial? Is the science of medicine materially advanced? To these questions the answer cannot be other than in the affirmative. Special study in medicine properly cultivated means the diffusion of information throughout the profession, and indirectly to some extent throughout the laity. The specialties are undoubtedly of service to suffering humanity. They do a large share of the toil of elucidating the intricate problems which beset us on all sides. They aid us in investigating the pathology as well as the treatment of disease. The specialist who is well equipped for his position, and who pursues his investigations from an elevated and scientific plane, should be encouraged. He is a distinctly valuable member of the community. As a rule, he accomplishes work of a superior grade. Most of the advances made, whether in the line of scientific or in that of more practical research, are due to his enthusiasm and energies.

To be successful, one must be a zealous worker, devoted to the labor for its own sake, for the progress that is made, for the good to the world at large that may ensue. The faint-hearted student, he who is always doubting his powers of observation and the utility of his work, and is ever sceptical as to the results obtained from remedies in relieving or curing disease, will never succeed. To prosper as a disciple of medicine, whether in theory or in practice, one must be imbued with a healthy, steady flow of enthusiasm, and, what is of greater importance, with faith, reasoning power, and conviction.

Pursue the kind of work you are best fitted for, whether in some

particular line or as general practitioners. Permit me here to remark that there is no field more estimable, honorable, and advantageous than that which the all-round medical man occupies. The world needs him to-day as much as it needed him five hundred years ago, and it will always require him. The sphere will ever remain open to all worthy men. The field of the specialist is found only in populous centres of highly civilized life, where large hospitals exist, and where diseases of the same kind are congregated; the field of the general physician and surgeon is everywhere on the face of the globe. His services are always in demand, in the upper walks of life as well as among the poor. In rank he is the peer, nay, the superior, of the specialist. He literally controls the situation, for without him the latter cannot exist.

The tendency of the day is towards specialism, but take care, my friends, that you follow not heedlessly with the throng. Believe me when I say that in so doing you are in danger. The mediocre or unsuccessful specialist occupies an unenviable position. Between his lot and that of the struggling general practitioner we should decide in favor of the latter. You are not all fitted by nature to be specialists. Probably most of you would meet with more prosperity and fill out more rounded and satisfactory lives as general practitioners. From a worldly stand-point, the average of your combined professional incomes would probably be larger in the latter than in the former sphere. It is a deplorable error to think that specialism is the only avenue leading to position and profit. The man with ability and tact succeeds whether his line of work be general or particular. The specialist, unless supported by character, pre-eminent attainments, and skill, will probably fall short of distinction.

To enter upon the study and practice of any particular department of medicine without natural endowment for the work entailed is a mistake. The practitioner, for example, who pursues the study of children without possessing by nature a kindly feeling for the little ones, can never gain their confidence, without which a successful career in the treatment of children's diseases is impossible. The eye, the throat, the ear, and the teeth, all require distinctive surgical aptitude and skill; the skin calls for faculty of close observation and attention to detail; the nervous system demands influence, control, and power. The surgeon should have a sound physical condition, with strong nerves and a steady head. He should possess decision, with good reasoning powers, knowing when to withhold the knife as well as when to apply it. He should be a masterly anatomist, a dexterous operator, and a broad-minded pathologist. The practice of internal medicine calls for a patient, accurate observer, one who is able to interpret correctly the slight as well as the grave symptoms, and who realizes the

importance of aiding rather than of coercing nature. She may sometimes be forced, but oftener she must be wooed. Without these requisites, nothing beyond mediocrity can be hoped for.

You, gentlemen, who have devoted yourselves to the study of the mouth and teeth may also look forward to lives of notable usefulness and distinction. Dentistry has grown, within the memory of many who are here to-day, from a crude specialty to an advanced art. Its forward strides have been remarkable, and you go forth from the University well qualified in both theory and practice to carry on the advanced work to still higher perfection. The importance, to-day, of this beneficial specialty is attested unmistakably by the interest in the subject the world over. For those who possess naturally the mechanical skill and other requirements demanded to pursue dentistry successfully, there exists an unbounded field in the superior grades of production, not only in this country but in other countries as well. Abroad, American dentists, especially those holding diplomas of Philadelphia institutions, are held in the highest esteem, and to-day graduates of the University of Pennsylvania are to be found practising prosperously in all the larger cities of Europe.

Gentlemen, graduates in Veterinary Medicine, you have chosen for your life-work a most humane, serviceable, and broad field. In the years to come you will find yourselves as a body of men even more fully appreciated and supported than you are now. The pathology of disease in the lower animals, especially those with which man comes in daily constant contact, has a vital bearing upon disease in man. With the existence of so wide-spread, communicable, and fatal a malady as tuberculosis in both men and the lower animals, there is positively great need in every community throughout this country for educated and skilled veterinarians. It is of the utmost importance to the health and well-being of the people that science shall see that the meat we eat and the milk we drink be sound and healthy.

Doctors! I have directed attention to some points which intimately concern your future welfare. The views expressed are the result of personal experience and observation. If they should prove of any help in the career upon which you are about entering, time will not have been spent unprofitably. You have my earnest wishes for health, good fortune, and the highest professional attainments. I bid you a hearty farewell.

ADDRESS AT THE COMMENCEMENT EXERCISES OF THE UNIVERSITY OF PENNSYLVANIA. ALSO REMARKS MADE AT THE UNVEILING OF THE MODEL OF A STATUE OF THE RETIRING PROVOST.[1]

By Horace Howard Furness.

Your Excellency [*Governor Pattison*], Mr. Provost, Your Honor [*Mayor Stuart*], Ladies and Gentlemen and—"our boys:"

The Trustees, whom I have the honor to represent, have deemed it fitting, on this memorable day, when a chapter of the University's history is about to be closed, that some note be made of the University's present position, and of the influences which have guided it thereto.

The simplest and most natural way of estimating our height is to recall the level whence we sprung. Be not terrified. I'll not retreat into the "dark backward and abysm of time," one hundred and fifty-four years, to the day when this University was founded, but ask you to go with me in your memory no further than to the year 1881, and, imagining ourselves within the wooden enclosure which then surrounds the University, take a bird's-eye view of the College buildings. (It needn't be a very large bird—I think a sparrow will do.) We see the College Hall, the Medical Hall, the Medical and Dental Laboratory, and, a little farther off, the half-sized University Hospital. In all, four buildings, standing on a plot of about fifteen and a half acres. Within these buildings, one of which holds the modest library of 20,000 volumes, forty-four Professors and Instructors teach Latin, Greek, Mathematics, French, German, Music, Medicine, Dentistry, and Law to nine hundred and eighty-one students, of whom by far the larger number are in the Medical Department, but all of them hungry after knowledge, and the Professors have hard work to keep their little gaping mouths well filled.

This was the University thirteen or fourteen years ago, sedate, conservative, respectable; quiescent in the belief that the methods of education which were wholesome for the fathers must be wholesome and all-sufficient for the sons and grandsons. Then came a revival of interest in education, sweeping like a wind over Europe, and reaching these shores. In one of the eddies, accelerated, it may be, by the rush of the nations through our Centennial town, our dear old University was caught, and lifting her serene eyes, she too pleaded for a wider range of usefulness, and a larger recognition.

The Provost at that time had accomplished a fine task, and had guided the University from its dingy, somnolent rooms in the heart of

[1] Delivered June 7, 1894.

the city to these new halls on the banks of the Schuylkill; but the voice of his early love still charmed him, that voice from whose accents he had learned "How a Free People conduct a Long War," and under whose inspiration he had sent this knowledge forth to fill with renewed energy, and with exhilarating hope the hearts of the whole North, from Lincoln in the Presidential chair down to the armed citizens in the ranks.

The summons of this voice to those fair but neglected fields of historical research, Provost Stillé could not disobey, and from those fields, as we are all proud to know, he has since then garnered fruits and harvests, which have placed his name high among the historians of the land.

And so we had to find a new Provost.

Do you think that an easy task? Bethink you,—what are the qualities which hope bade us find somewhere or other embodied in one man? Our ideal Provost had to be a man of marked individuality (a quality predestined to hostile criticism); a man of administrative ability (which is sure to collide with indolent inertia—the besetting sin of students); a man of firm will; able to read the future in the instant; of consummate tact; and above all he must be vigilant to discern in the educational heavens the signs of the time. Lastly, our ideal Provost, while he need not of necessity be an anatomist, must, nevertheless, know, to the extremest nicety, the exact location in every rich man's body of the *pocket-book* nerve—that nerve of the keenest sensibility in the whole system—and our ideal Provost must know when and where and how to touch this nerve so as to excite the largest reflex action.

Do you think such Provosts are as plenty as blackberries?

What an anxious time it was, in those far-off days! Numberless were the candidates whose fitness was discussed. I remember I was deputed, when in Boston, to sound the revered Phillips Brooks, and on two different days I pleaded with him. To him whose love for young men was commensurate only with his power over them, the temptation to accept the office of Provost here was, as he repeatedly said, very great; at one time I was filled with hope, but at the last he decided that, dearly as he loved Philadelphia, the clearer vision forbade him to desert his Boston parish.

You all know where our choice, our happy choice, at last fell, thirteen years ago. Would you know how happy that choice has proved, lift your eyes and mark: In addition to the four buildings which we saw thirteen years ago, we now see a Library, as a building one of the finest and best equipped in the land, holding within its fire-proof walls 120,000 bound volumes, and already becoming the nucleus of pleasant college memories; we see an Electrical Laboratory, where

the thunderbolt, which the founder of this University snatched from the skies, is reclaimed from the wild zigzag courses of its youth, and while teaching us how to control it, is itself taught decorum and sobriety and how to earn its living—or if not "its" living, it is taught to earn ours, which is better; we see a large Central Light and Heat Station; we see a Veterinary Building with its long row of pathetic hospital stalls—I say "pathetic" because in them stand the patient, disabled breadwinners of many and many a poor household, to which, by the best skill of this beneficent institution, they are restored, when possible, sound and ready for renewed gain-giving toil; behind this long, low building we see the pretty, cottage-like Hospital with its piazzas and verandas, where, for that most faithful friend of man, the dog, every canine comfort is provided in his ailments, and where physic is gently administered, and not brutally *thrown* to him as Macbeth prescribes (but what else could we expect from that wicked tyrant? Ah, what profound lessons Shakespeare teaches! In that tragedy he shows us that when once a man has entered on the downward path by murdering his king he goes from bad to worse until at last he will not scruple to recommend that physic be *thrown* to dogs! We always administer it at the Veterinary, gently, with a spoon—and plenty of it). Beyond the Veterinary Building stands the Biological Building, into whose admirable museums and attractive lecture-rooms, who can enter without wishing to "call back yesterday, bid Time return," that once more a youth, he can there drink thirsty draughts of the knowledge of Life in its Protean forms? we note a spacious wing added to the Hospital, almost doubling its size, and near by, a delightful, attractive Home for the Nurses where, during the hours when they are not watching by the bed of pain, all the comfort and seclusion of a home are provided for those white-robed ministrants of mercy; and on the other side two Maternity Hospitals; behind them all, the Mortuary, complete with every appliance suggested by modern skill and experience; on the right is the Wistar Institute of Anatomy, that fine institution, unparalleled, I believe, in this country, devoted solely to original research, whence will issue, in coming years, solutions of Nature's mysteries of inestimable benefit to mankind; and on the left the home-like residence devoted to the accommodation of the young women attending the professional schools; beyond is the Hygienic Laboratory, where microbes and bacilli are challenged and made to stand and deliver, and where we learn that the true Battle of Life is fought in our veins and arteries; and, still farther on, is the Laboratory of Chemistry, that fascinating science the sum of whose formulas must have been in the Creative Mind when the morning stars sang together and Eternity became Time. In addition we see a Dining Hall, and the Athletic Grounds, whereon,

to make the balance true between all departments, the worship of brain is counterpoised by the worship of brawn.

Thus much for the mere buildings, which now number twenty in all, five times as many as we saw in 1881, while the College grounds have expanded to fifty-two acres, as against the former fifteen and a half.

If we turn to the list of Professors and Instructors, we find that there are six times as many now as there were thirteen years ago. Our last catalogue shows that they now number two hundred and sixty-eight, and the number of students has more than doubled. There are now two thousand one hundred and eighty cormorants for knowledge who are eminently successful in keeping their Professors from falling into the mischief which Satan finds for idle hands to do.

If we compare the value of the property of all kinds held by the University in 1881 with what it now holds, we shall find the same noteworthy increase. In that year, in round numbers, it was sixteen hundred thousand dollars. It is estimated in this present year to be, also in round numbers, five millions of dollars. Assuredly a mighty sum! and assuredly a meagre pittance! At this hour the University is poor, wretchedly poor, and she would still be poverty-stricken, let us fervently hope, if she had fifty millions instead of five. When any institution, as has been said, needs no more money, its hour of usefulness has struck, its life has departed, and it had better close its gates. Every appeal for more money which the University makes is the birth-cry of a new department which will widen its resources, extend its educational power, and enable it to answer the needs of the day. Expansion means life, and life means growth, and growth means money. Spell "growth" as you please, according to the good old fashion, or according to the reformed spelling, g r o t h, but in our University parlance it must be always pronounced *money*. Never, therefore, as you love the dear old University, think that its cries for help will ever, ever cease. In that hour when it says it has enough, oh, then be sure to say the University is dead.

In additional proof of the University's growth during the last decade, let me enumerate the Departments which have been instituted, and not merely instituted, but welded into one organic whole, in itself a noteworthy achievement. The mere titles are sufficient. To give a full description of each one, describing its scope, its success, the exactness with which it fills an educational need, would outweary patience.

I do not give them chronologically in the order of their establishment, but they are:

The Wharton School of Finance and Economy,

The Biological Department,

The Department of Philosophy,
The Department of Physical Education,
The Veterinary Department,
The Auxiliary Department in Medicine,
The Training School for Nurses,
The Post-Graduate Course in Law,
The University Library,
The Graduate Department for Women,
The Biddle Law Library,
The Department of Archeology and of Paleontology,
The Department of Hygiene,
The Semitic Department and of Assyriology,
The Department of American History,
The Department of Architecture, and
The Wistar Institute of Anatomy and Biology.

Auxiliary to these departments, and enlarging those already established, the courses in Mechanical Engineering, in Civil Engineering, in Chemistry, in Architecture, and in the Wharton School, have all been extended to four years.

The Law Course and the Dental Course, from two years have been enlarged to three years, and the Medical to four years.

Probably no statement can show more concisely or more strikingly the expansion of the University than the fact that in 1881 there were one hundred and fifty-four courses of study open to the students, and that there are now, under the elective system, six hundred.

Furthermore, in pursuance of a far-sighted policy, the Provost has gathered around the University certain groups of earnest men and women who, under the University's sanction and encouragement, carry on, with no tax on our overburdened finances, the University's work, be it in accumulating museums, or in providing lectures, supervising hospitals, etc.

Nor should those fine publications be forgotten which our Professors from time to time send forth under the University's imprimatur, carrying to the wide world of letters at home and abroad the proofs of exact and refined scholarship and research.

Nay, in answer to our knockings the centuries buried beneath the sandy plains of Nippur have awakened to tell across the ages the old, old story of human life.

Here, at last (not, by co-education though, Heaven save the mark!), women have the chance to prove what we have all along known in our secret, envious hearts to be the truth: their intellectual superiority to men, and that Nature's law is that finer, fairer clay clothes finer minds.

Moreover, as the whole country cannot come to the University,

our Provost has been foremost in extending the resources of the whole University to the country.

Indeed, we have not rested in letting scholarship alone extend our fame; have we not enlisted the animal kingdom? Birds, beasts, and reptiles have flown, hopped, skipped, and jumped in every phase of Animal Locomotion through the capitals of Europe and the palaces of kings; and every one of them labelled: "University of Pennsylvania."

And that we might not hide our light under a bushel displays and specimens of our work have been sent to the International Exhibitions in New Orleans, in Madrid, and in Chicago.

As an outgrowth of the present time, the prophetic eye sees added to the Hospital another wing, devoted to children and to surgery, and dedicated to the memory of our idolized Agnew.

Furthermore, in that same prophetic vision, there rises as an extension of the Hospital a Pathological Laboratory, built by Provost Pepper as a filial and enduring memorial of his father, who was once the honored incumbent of the chair of the Theory and Practice of Medicine now held by his son.

These are some of the outward and visible expressions of the University of Pennsylvania as it stands to-day. But are they the University? "Stone walls do not a prison make," nor do they make a university. We may cover acres with buildings filled with every appliance for tuition, and yet they may all be as dead and as unproductive of any good to the world, as unresponsive to any intellectual need of the life that now is, as are the monastic cells in the desert of the Thebaid. A university, in this country, should be not only a place of instruction, or of original research, but it should be something more, it should be a centre, whence, not merely by the annual graduating of classes, but through the active enthusiasm of its Faculties, an intellectual life shall be diffused far and wide. And if, happily, the university be placed in a vast city, as here, its influence should be discernible throughout the whole educational system of that city. It should be the summit of a "starry-pointed pyramid" composed of the multitudinous schools of the Commonwealth. To attain this exalted position, in which every citizen should take a pride, the University must be brought into close relations to the civic government, and in the City Councils and State Legislatures it should have duly elected representatives. All this the prophetic eye sees steadily approaching.

Within its own walls, however, its first endeavor is not to turn out deep thinkers or leaders in politics, or in the arts, any more than it is the object of a cook to make fat men. Leadership will come in the fulness of time to those of its graduates who are leaders by the grace of God. As well might we demand of our Professors of Finance that

they should turn out every year a whole class of millionaires. Nay, on the Johnsonian, burlesque principle that "who drives fat oxen should himself be fat," we might demand that these Professors themselves should be the very wealthiest of men. (Indeed, I wish they were!) What a university can attempt, with any hope of success, is to make an already keen love of knowledge keener, and to teach the average young man how to assimilate books. It can teach how to study, how to think, and in the professional schools, how to mine knowledge, in short, how to begin life. To demand of it that it should make of young men leaders, or impart extraordinary proficiency in any direction is to ask it to put old heads on young shoulders, an experiment destined to turn out as disastrously as Bottom's experience in "A Midsummer Night's Dream." It should be a training school for every faculty with which nature has endowed us. Every pathway should be made a thoroughfare to that intellectual, supernal plain where, as Milton says, all is "so smooth, so green, so full of goodly prospect and melodious sounds on every side." After the University's work is done, and its students have been led forth (in its true derivative sense e-ducated) from the darkness of ignorance, all future careers, whether as leaders or as followers, or as mere nonentities, must be left to circumstances, and to that formula on which every man's temperament is based.

But in order to accomplish this work, in order to open these pathways, the University's resources must be as complete as possible, and supplemented by a close correspondence with the times. It must lie, "all Danaë to the stars," receptive of all good influences. And thus receptive, thus responsive, thus obedient to its duty to students, there will thence ensue a beneficent power on the community at large; and while seeming to lead it will in reality follow.

> "As unto the bow the cord is,
> So unto the man is woman,
> Though she bends him, she obeys him,
> Though she draws him, yet she follows."

This should be the relationship of the University to the world around it. Though it leads the intellectual thought of the day, it really follows it; though it seems to give the watchword, it gives in reality the reply.

Has our University reached this standard, and not only does this tie bind it to the Commonwealth, but is there in all its fair buildings, and in its thronged lecture-rooms the quickening, informing life which yields vitality to every scion of learning budded on it? Have there from this casket of erudition shone forth the sparkling rays which

attract to it the admiration and the pride of men, far and wide? Is it dear to every young soul as the spring where the consuming thirst for knowledge may be slaked? Do men and women of mature years look to it as to the focus, the hearthstone, of that fire which is to warm into activity all their intellectual life?

The presence here to-day of this assemblage of thousands gives the triumphant answer.

To the hearts of thoughtful men and women in this City and in this State, the career and fortunes of the University of Pennsylvania come home this day, with a personal force undreamed of in former years. Well has it been recently said by his Honor, the Mayor, that "Nothing so well attests the advance of Philadelphia as the growth of the University." Brave words, wherein our University finds its grandeur and its power.

And all this is the work of the last decade, under the guiding influence of one man.

To this present position of the University (thus most briefly recalled), to the increase of buildings; to the increase of professors; the increase of students; of departments; of pecuniary resources; to its higher influence; its consolidated organization, and its keen intellectual activity—to all these the Trustees appeal this day as a justification of the wisdom of their choice thirteen years ago.

And to the Provost of their choice, in this closing hour of his official duties, the Trustees acknowledge their appreciation of his unparalleled services, and, remembering the self-distrust and pale misgivings with which he assumed his high office, they are happy in the consummation which has made that office higher than their imaginations pictured when he ascended the chair.

We, therefore, the Trustees, believing that, on an occasion like the present, the briefest words are the strongest, ask him here and now to accept this public expression of our official thanks.

So far the University, as an institution.

Let me now, as Anacreon says, change the chord, and, doffing the Trustee, turn to matters more personal.

It is not often in a man's life that he finds himself obliged, as I now find myself, to speak privately in public. But on the subject to which we must now turn, I must speak to you very confidentially, as far as the Provost is concerned; if, after this warning, he chooses to listen,—well, there is a proverb about "listeners" which he can lay to heart, and if he wince, he must not blame us.

'Tis a thankless task to refer to the imperfections in human nature, —it's the only nature we have, and we had better make the best of it. Yet we cannot quite shut our eyes to the consciousness that there is, in

this nature of ours, at least one uncomfortable trait,—I had almost termed it a detestable trait,—which is: An aversion to praise any man, and above all to rear any monument to him, while he is living. We fill high the sparkling bowl to the memory, and we pile high with wreaths the tombs, of men to whom when living we vouchsafe not much more than a supercilious nod. They may have craved a word of sympathy or of admiration, and we are marble mute, but no sooner are they where "Honor's voice" cannot "provoke the silent dust," nor "flattery soothe the dull, cold ear of Death," than we burst forth into applause of their deeds, rend the air with our peans of lofty praise, and erect their statues. Herein the world has grown no better since the days of Homer: "Seven Grecian cities"—you all know the distich.

But without stopping to analyze this feeling, let *us*, at least, here and now, reform the practice, and, remembering who it is that has raised this dear University to her present eminence, and recalling who it is that has toiled night and day in her behalf, and made her influence felt throughout this City, and throughout these Middle States, with never a thought of self, or of his own interest, or of his own ease, let us cast to the winds this petty, unworthy feeling, and say, outright to his face, how much we love and honor and admire our Provost.

In the midst of our applause and admiration of our retiring Provost (it is the very first time, by the way, that, where the interests of the University were concerned, he has been retiring), let us not forget that, while exactly fulfilling these manifold and most onerous duties as the Head of a large University, he was still in active practice as a far-famed physician:

> "Who doomed to go in company with Pain
> And Fear and Bloodshed, miserable train!
> In face of these doth exercise a power
> Which is our human nature's highest dower."

The large emoluments derived from this widely extended practice he has bestowed with lavish hand on the University; the stores of experience there gained he gives in his lectures to his large classes in the Medical School.

But all this pertains somewhat to that official character which he is so soon to put off. Our dismay herein would be profound did we not believe that under the wise rule of him whose modesty will permit us to call him only a half successor, the glowing and exuberant health of our fair and ever young mother would continue. But shall we not, once more before we part, come even closer to our Provost, and say who he has personally endeared himself to us all? Shall we not recall that gentleness, that urbanity, that intense earnestness which lent mettle to every Professor and to every student within our gates, and

that unflagging industry and Titanic power of work, which have been the admiration of all,—and the despair. Those who have been close beside him, have known better, perhaps, than others at a distance, how single has been his eye in every question of the University's interests, and that it has been his self-effacement which, "Clock to itself, knew the true minute" when to act.

No "Fair Mother" ever had a more devoted, self-forgetting son, and she cannot forget him. No perennial bronze is needed to secure his memory. When he has "joined the choir invisible" (*Absit omen!*)

> "*Serus in cœlum redeat, diuque*
> *Lætus intersit populo!*"

he will "live again in minds made better" by his labors here. Each annual wave dismissed from this spot will, in ever-widening circles, carry his influence long and far. But this assurance, firm though it be, is for us simple folk, somewhat of the chameleon's dish, promise-crammed, and we have Hamlet's word that there is no strengthening power there. Wherefore in this materialistic age, we, the sons of the University by birth and by adoption cannot be contented with anything less substantial than a visible, material sign of what must some day be an immaterial presence. As "the meanest garment which has but clipped the form of those we love" is dear to us, so we crave, for our Provost, what is even better:—his likeness in his habit as he lived, "wherein the sculptor had a strife with nature to outdo the life," to which we can point in future years and say "*Sic sedebat.*" Albeit we know that "that better Self shall live till time shall fold its eyelids," yet this statue, moulded by hands of highest skill, shall, when cast in enduring bronze, transmit to future ages the lineaments we all love so well. It is not unlikely that, at first, even this will disappoint you, the living face with its color and softer outline is too vividly present in your thoughts. But the time will come when generations, now unborn, will gaze with gratitude upon it, and then, when all discords are hushed and all the petty limitations of mortality are forgotten, and we are all gone, "where are no storms, no noise, but silence and eternal sleep," then shall this image which I now unveil be held as the true effigy of one whose heart and soul and mind and strength were devoted, while Provost, to the University of Pennsylvania.

> "Who is the Happy Warrior? Who is he
> That every man in arms should wish to be?
> Who, when mortal mists are gathering, draws
> His breath in [serene hope] of Heaven's applause?
> THIS is the Happy Warrior! This is he
> That every man in arms should wish to be!"

ON POTASSIUM PERMANGANATE AS AN ANTIDOTE TO VEGETABLE POISONS.

By H. C. Wood, M.D., LL.D.,

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This paper is the outcome of an attempt at a research which has been aborted by multitudinous professional engagements, a tired nervous system, and the immediate approach of a European vacation. The results reached have seemed worthy of being put on record, even if they be not final, and be, as the author hopes, only the prelude of an elaborate study later in the year.

Dr. Johann Antal appears to be the first to have suggested the use of potassium permanganate as an antidote for vegetable organic poisons.[1] He experimented with *muscarine*, *strychnine*, *colchicine*, *oil of savine*, and *oxalic acid*. He found that if the solution of permanganate were given at the same time as the poison it prevented the action, although in control experiments the doses of poison were always fatal. He even found that no poisonous effect was produced by the hypodermic injection of strychnine, provided the permanganate was immediately injected into the same spot.

The next experimenters in this line were Schlagdenhauffen and Reeb, who studied the antidotal power of the poison upon the glucoside *coronillin*. They found that a dose of coronillin, which in the control experiment with a pigeon proved fatal, had no effect upon a second pigeon when mixed with a solution of the permanganate. Again, a mixture of the permanganate with the coronillin injected into the guinea-pig failed to act, although the same dose of coronillin given by itself killed a second guinea-pig. They further claim, it is not necessary that the permanganate be injected into the same position, or at the same time, as the coronillin, finding in a series of experiments upon frogs that even the distant injection of the permanganate suspends the action of the coronillin. They declare that the addition of the carbonate of soda, or any other alkaline salt, greatly hastens the action of the permanganate upon the coronillin.[2]

Dr. Wm. Moor[3] proposed the potassium permanganate as a chemical antidote for *morphine*. He states that if one grain of morphine sulphate be dissolved in a solution of 250 grains of white of egg and one ounce of water, and one grain of potassium permanganate dissolved in

[1] Magyar Orvosi Archivum, 1893, 2 Heft, Excerpt, but is known to me only by the excerpt in the Pesther medizinische chirurgische Presse, 1893.

[2] Journal de Pharmacie, October, 1893.

[3] New York Medical Record, February 17, 1894.

one ounce of water be added, the morphine will be immediately destroyed without the albumen being interfered with. As the result of a series of chemical experiments he comes to the conclusion that potassium permanganate has no effect upon atropine, cocaine, veratrine, pilocarpine, aconitine, or strychnine. In proof of the antidotal value of the permanganate, Dr. Moor himself took semipublicly three grains of morphine sulphate followed immediately by the permanganate. No narcotic effects were produced.

In approaching the practical study of the antidotal value of potassium permanganate, the subject naturally divides itself into two portions, first, as to the value of the permanganate when given by the mouth as a chemical antidote; second, as to the possibilities, as is alleged, of its following the poison into the blood, and there acting chemically upon it. In accordance with this division, I shall arrange my paper, so far as morphine is concerned, into two parts, Sections A and B.

Morphine.

Section A.

In testing the antidotal value of the permanganate I have made two series of experiments: first, those in which the permanganate solution was added to the alkaloidal solution outside of the body, the precipitate removed, and the filtrate given either by the mouth or hypodermically; second, those in which the two agents were given separately by the mouth. The experiments made with the filtrate were as follows:

SERIES I.

Experiment.	Animal.	Drug.	Result.	Remarks.
1	Pigeon	2.5 c.c., 8-per-cent. solution of morphine.	Death in twenty-two minutes.	Control experiment.
2	"	2.5 c.c.; eighteen minutes later a second 2.5 c.c. of filtrate.	No apparent illness.	
3	"	4 c.c. filtrate representing 5 c.c. morphine solution, 8 per cent.	No apparent illness.	
4	"	7 c.c. filtrate; 10 minutes later, 5 c.c. filtrate.	Died suddenly one hour and fifty minutes after filtrate.	No convulsions or other evidences of morphine-poisoning.

In making the experiments just given probably from five to ten minutes elapsed between the time at which the two solutions were poured together and that at which the finished filtrate was removed

from under the funnel, although the mixed solutions were poured upon the filter-paper within a minute of their original conjunction.

The result of the experiments seems to show that the filtrate from the mixed solution of potassium permanganate and morphine sulphate is almost, but not absolutely, devoid of poisonous properties. Twice the ordinary dose of the morphine solution failed to produce any symptoms, and when death did occur after an enormous dose of the filtrate the symptoms were not those of morphine-poisoning ; an indication that the result may have been produced by some substance other than the narcotic alkaloid.

I next attempted a series of experiments upon dogs with the morphine given by the mouth, but found the result very unsatisfactory. In a number of control experiments I failed entirely to kill the dog with morphine. Thus fifty cubic centimetres of a 4-per-cent. solution of morphine sulphate (representing 30.7 grains of alkaloidal salt) produced in a dog weighing ten kilos great quietude, with some stiffness and much evidence of illness, ending, however, in complete recovery ; and when I assayed larger doses vomiting came on in every case, and no symptoms of morphine-poisoning were produced. Two somewhat satisfactory experiments were made with the morphine solution in the rabbit. Ten cubic centimetres of a 4-per-cent. solution of morphine I found to cause in a rabbit weighing 3.25 pounds violent, persistent tetanus, beginning in fifteen minutes, but finally recovered from ; while in a second experiment with a rabbit weighing 3.50 pounds ten cubic centimetres of the narcotic solution, followed in six minutes by ten cubic centimetres of the potassium permanganate (4 per cent.), failed to produce any evidence of poisoning whatever.

From these few and inconclusive experiments it is evident that such enormous amounts of morphine are recovered from by the animal when the alkaloid is given by the mouth that antidotal experiments are very unsatisfactory. Under these circumstances chemical studies become of especial value. I am happy to be able to give the results of some very careful work by Professor Wormley.

Professor Wormley dissolved 250 milligrammes of morphine sulphate in 25 cubic centimetres of water containing 500 milligrammes of potassium permanganate ; maintained temperature at 100° C. for ten minutes, at end of which time color was discharged. The mixture was then treated with slight excess of ammonia and extracted with hot amylic alcohol ; the extract showed traces of morphine.

In conclusion, it seems to me that the evidence which has been offered by Dr. Moor and others, taken in conjunction with what I have been able to bring forward, indicates that the potassium permanganate given by the mouth directly after poisoning is a valuable, but not

perfect, antidote to the morphine salts; an antidote, however, which should not be relied upon to the exclusion of emptying the stomach by medicinal or mechanical means.

Section B.

I do not know that it has been claimed in type by any American observer that the potassium permanganate is capable of following an organic poison into the blood and there acting upon it, although I was recently surprised to find in New York City the wide-spread belief in the existence of such action, so that tablets of the potassium permanganate are furnished for hypodermic use. Further, Schlagdenhauffen and Reeb distinctly claim that the permanganate has the power of being absorbed and acting upon the poison which has been previously taken into the blood. The avidity with which potassium permanganate attacks all kinds of organic matters, living or dead, strongly militates against its capability of absorption into the blood, and I have always believed that such absorption was impossible. Nevertheless, it is necessary to test by experiment this *à priori* reasoning in order to arrive at positive conclusions. Experiments were therefore made upon pigeons in which a morphine sulphate and potassium permanganate were given hypodermically.

No.	Morphine solution, 8 per cent.	Permanganate solution, 4 per cent.	Result.
1 control	2.0 c.c.	None	Recovery.
2	2.0 c.c.	2 c.c.	Death in one hour and forty minutes.
3	2.0 c.c.	4 c.c.	Death in one hour and sixteen minutes.
4 control	2.5 c.c.	None	Death in twenty-two minutes; pigeon very young.
5 control	2.5 c.c.	None	Recovery after some tetanus; old pigeon.
6	2.5 c.c.	5 c.c.	Death in fifty six minutes.
7	2.5 c.c.	5 c.c.	Death; time not known.

Upon rabbits two experiments were performed with solutions and in a manner precisely like those just described.

No.	Weight.	Morphine solution.	Permanganate solution.	Result.
8 control	1¼ lbs.	4 c.c.	None	Death in one hour and forty-two minutes.
9	1 lb.	4 c.c.	8 c.c.	Death in one hour and eight minutes.

Two experiments were performed upon cats, the poisons being used hypodermically.

No.	Weight.	Morphine solution.	Permanganate solution.	Result.
10 control	2.25 kils.	1.5 gm.	None	Death in thirty-seven minutes.
11	2.50 kils.	1.5 gm.	1.12	Death in thirty-five minutes.

The results in these three series of experiments are in entire accord; in the pigeons death was apparently hastened or produced by the permanganate; the rabbit that received the permanganate died in about two-thirds of the time that was required to kill the one which received no permanganate; the cat that had the alleged antidote also died a little sooner than its fellow, which was injected only with morphine sulphate. The results obtained by Reeb and his coadjutor may be explained by the supposition that the very loose tissue of the frog allowed the permanganate to permeate the body and the two substances to come in contact before absorption, although they were not injected into the same spot. At present both *à priori* reasoning and experimental evidence make it highly improbable that the permanganate has any influence upon a poison after its absorption.

Strychnine.

In order to test the antidotal value of potassium permanganate to strychnine, the first series of experiments was made similar to those with morphine,—namely, by adding the potassium permanganate solution to the strychnine. Rather strangely, I neglected to put in my notes the strength of the solution of strychnine used in these experiments, but believe it was $\frac{1}{20}$ of 1 per cent. The fact is, however, of little importance, since the solution used in the control and other experiments was the same.

Owing to the loss of time during filtration it was very difficult to determine how long the contact existed between the strychnine and potassium permanganate, the latter being used in excess, but so near as I can make out it was about five minutes. The decoloration of the permanganate solution is very pronounced at the end of one minute after the solutions have been poured together.

In three successive control experiments one cubic centimetre of the strychnine killed a pigeon in one minute; one-fourth of one cubic centimetre produced death in another pigeon in one minute; one-eighth of a cubic centimetre killed in five minutes. In the experiments with the filtrate, one pigeon survived three cubic centimetres of the filtrate

injected at once; a second pigeon received three cubic centimetres hypodermically of the filtrate, and two minutes later five cubic centimetres, and yet did not show marked evidences of strychnine poisoning. That, however, the strychnine was not completely destroyed was shown by the facts that after the evaporation of the filtrate, Professor Wormley was able to get a strychnine color reaction from the residue, and also that ten cubic centimetres of the filtrate injected into a very young rabbit caused death.

These experiments seem to demonstrate that the potassium permanganate has the power of destroying the alkaloid strychnine, but do not demonstrate that its action is sufficiently prompt and decisive to make it a reliable antidote. Further, the very skilful chemical studies of Professor Wormley show how limited the destructive influence of the permanganate is. He dissolved 100 milligrammes of strychnine sulphate in 10 cubic centimetres of water. He added 100 milligrammes of potassium permanganate filtered and evaporated to dryness: from the residue he extracted 62 milligrammes of undecomposed strychnine sulphate. In order further to test the matter, I made a series of experiments in which animals were given strychnine by the mouth.

Experiment.	Animal.	Time in Mins.	Dose, Strychnine Sulphate, 1-20 of 1 Per Cent. Solution: Permanganate, 4 Per Cent. Solution.	Result.
1	Dog, 8 kilos.	0	Strychnine, 8 c.c. Permanganate, 3 c.c. mixed and swallowed together.	No symptoms.
2	Same dog as in No. 1.	0.75	Strychnine, 8 c.c.	Death.
3	Dog, 13 kilos.	0	Strychnine, 10 c.c.	
		3	Permanganate, 3 c.c.	
		5		Violent general spasms.
		10		No spasms but rigidity.
		60		Better.
		75		Walk about all right.
4	Same dog as in No. 3.	0	Strychnine, 15 c.c.	
		1	Permanganate, 3 c.c.	
		6		Violent spasms.
		16		Died.
5	Dog, 12.5 kilos.	0	Strychnine, 10 c.c.	
		1	Permanganate, 3 c.c.	Recovery.
6	Dog, 10 kilos.	0	Strychnine, 10 c.c.	
		1	Permanganate, 3 c.c.	Recovery.

The experiment No. 1 of the present series, in which a dose of strychnine killed a dog in which the same dose given a couple of days before with the permanganate had caused no symptoms, shows that the latter salt has some antidotal power, although the later experiments prove that this power is limited.

THE NON-OPERATIVE TREATMENT OF BRAIN TUMORS.[1]

By Theodore Diller, M.D.,

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Tumors situated in areas of the brain inaccessible to the surgeon are, of course, inoperable. Symptoms may indicate an intracranial growth with reasonable certainty, but point to no particular locality as its seat. Such cases are likewise as unsuitable for operation, yet it is true that an exploratory operation may, in view of progressive symptoms, be justifiable. In either case an operation (even as a temporary expedient) for the relief of intracranial pressure may, through stress of circumstances, be justifiable. I have myself reported a case where the lateral ventricles were tapped by Dr. Stewart to relieve pressure caused by a neoplasm in the pons.[2] Even operations for the supposed curative effects of the operation *per se* have been undertaken, but are of doubtful propriety.

But the problem which I wish to discuss here more particularly is whether all tumors which can with reasonable certainty be localized in regions accessible to the surgeon should be operated upon. For my part, I am prepared to take the position that, as a rule, cases of brain tumor in which the growth can be definitely or approximately localized, should be treated surgically only after medical treatment has failed to cause the arrest of or an improvement of the symptoms. There are cases, however, where, with an arrest of symptoms, the life of the patient may remain so intolerable that an operation is clearly demanded. On the other hand, an operation should not be delayed for medical treatment longer than from one to three months where the symptoms are progressively growing worse.

I am led to these conclusions by the relatively unfavorable outcome of surgical operations. While yielding to no one in admiration of the great work which has been done (both experimentally and clinically) in the way of cerebral localization, I must confess to a sense of personal disappointment concerning the practical outcome of these operations for brain tumors.

McBurney and Starr, in a valuable monograph published last year,[3] have collected all operations which have been undertaken for the removal of brain tumors up to the end of 1892. The total number was

[1] Paper read before the American Neurological Association at meeting held at Washington on May 29, 1894, and days following.

[2] American Journal of the Medical Sciences, November, 1892.

[3] American Journal of the Medical Sciences, April, 1893.

87. Of these, 21, or nearly one-fourth, died as the result of the operation. In 40 cases, or only 46 per cent. of the total number, was the operation a success in that the tumor was removed and the patient recovered. But certainly an operation is a success in only a limited sense which is merely a surgical success. Unfortunately nearly all the reports of the 40 successful cases[1] were made in less than a year after the operation,—a number of them within a few weeks. Not a few of the reporters, in speaking of the success of these operations, mean only the "surgical success." Indeed, we are singularly lacking in accurate data as to the ultimate outcome of these 40 so-called successful cases. But it seems highly probable that in a considerable number of these 40 cases the success was little more than a surgical one. Doubtless in some of them cysts refilled, or malignant growths recurred, while paralysis or convulsions persisted or returned. In those cases in which some measure of relief of symptoms followed the operation, it may be doubted whether, had the patients known the degree of relief they were to obtain, they would have submitted to an operation from which they ran one chance out of four of dying. If only those cases were accounted successful in which the growth did not recur and in which the symptoms for which the operation was done were markedly relieved and did not return, say, within two years, I very much fear that the percentage would be reduced by one-half or three-fourths.

In this connection I desire to relate the subsequent history of a case of brain cyst which was evacuated by Dr. Buchanan in August, 1892, and which was reported by us.[2] The cyst was beneath cortex in the lower part of the ascending frontal convolution, on the left side. The symptoms from which the patient suffered were right hemiparesis, motor aphasia, right-sided convulsions, besides vertigo, headaches, and vomiting. Complete relief of these last three symptoms followed the operation, while the aphasia, paralysis, and convulsions, although somewhat improved, persisted. This improved condition lasted a few months, when the convulsions recurred with great frequency and severity, the man losing his life some fifteen months after the operation by falling into a stream of water during one of them, and being drowned.

The following cases of supposed intracranial growths in which, after consideration, an operation was decided against, illustrate some of the problems to which I have alluded.

CASE I.[3]—Ed. H., aged 15; family history good. For two years

[1] There have been a few more cases reported in the past year since the publication of the paper of McBurney and Starr, but as these do not materially affect McBurney and Starr's percentages, I will not consider them.

[2] American Journal of the Medical Sciences, July, 1893.

[3] Referred to me by Dr. J. P. Shaw, January 23, 1893.

past has had severe headaches about once a month, which have been especially severe of late, and accompanied with vomiting. A little over a year ago had large, painless swelling below the angle of the jaw, and along-side of the neck,—possibly tubercular. About September 15 it was noticed his face was drawn to left side slightly. In November the right leg began to lose power, and a month later the right arm. This paresis increased very slowly. About a month ago he noticed that his right eye was defective, as he thought,—*i.e.*, he could not see objects well to the right of himself. His last paroxysm of headache was the most severe he had ever had, lasting twenty-four hours.

Examination.—January 23, 1893. Face drawn to left distinctly. In walking drags right foot, and does not swing right arm as much as left. Right hand is reddish in color, and slightly puffy. Sensation preserved in paretic parts. Grasp of right hand about one-half that of the left. Dr. Edsall examined the eyes and found distinct papillitis and right homonymous hemianopsia with normal vision. Wernicke's hemiopic pupillary inaction sign could not be elicited.

Percussion of head elicits a distinct area of tenderness on the left side, two inches anterior to the inion, and bordering on the median line. This result was verified at a number of subsequent examinations.

These symptoms pointed to the position of the left cerebral hemisphere, posterior to the optic thalamus as the seat of a tumor. If it were cortical it must have been large to have produced, through pressure, the paresis which was present. A smaller subcortical growth, involving the optic radiations, and pressing on the internal capsule or the crus would also account for the symptoms. I explained to the parents that there certainly was a tumor in the boy's brain, and that an operation might be demanded at any time, but advised a course of medical treatment first. I gave him $\frac{1}{32}$ grain of strychnia, and ten grains potassium iodide t. d., and applied faradism to the paralyzed parts, and a feeble galvanic current to head three times a week. Under this treatment the lad made some little improvement for about a month, and then remained stationary for another month. He then passed from under my observation. I learned recently that he died last February,—just about a year from the time I first saw him, his symptoms having grown progressively worse until the end.

While the boy was under my observation I felt that there was a strong probability that the tumor was subcortical and, perhaps, quite deeply seated. Yet, if the symptoms had grown worse, I should certainly have advised trephining over the left occipital region corresponding to the area of tenderness on percussion. But in view of grave sur-

gical difficulties which the case seemed to promise if operated upon, and the fact that the symptoms, to say the least, grew no worse, and the lad's life was quite tolerable to him, I pursued the course described. Of course, it may be said, that an operation might have saved or prolonged life. On the other hand, it can be said that there is one chance in four that it would have shortened life just one year.

CASE II.[1]—J. D., aged 33 years; single; butter-dealer; denies specific history; has always been temperate. He is of cheerful disposition, active temperament, and comes from a healthy family.

In 1882 he fell down two or three flights of stairs, striking his head severely. Ever since this accident he has been subject to headaches. These have often been very severe. He frequently places his hand over his occiput during a paroxysm, indicating in this way the seat of maximum pain. He tried very many remedies, but obtained little or no relief. In June, 1893, his eyesight began to fail him, and progressively grew worse up to the time I first saw him. In the mean time the headaches grew more severe than ever. He occasionally vomited during a paroxysm. He suffered, too, a good deal from vertigo. About two months ago he began to stagger in walking, and this, like other symptoms, had increased up to the time I first saw him. Friends and neighbors say this staggering was always to the right. He was often suspected of being under the influence of liquor because of his unsteady gait. Since July, 1893, he had been taking iodide of potassium in increasing doses. During the past two months has taken 150 grains t.d. During the past two or three weeks he has had occasional flighty spells. On February 9 and 10 he had two violent maniacal outbreaks, exhibiting many delusions and requiring the united energies of two or three persons to restrain him.

I saw him on the 10th, and advised his removal to St. Francis's Hospital. All his symptoms had increased up to this date. Dr. Dean reported that optic atrophy had reached an advanced stage. In a few days after admission to the hospital his maniacal symptoms declined, and he became profoundly melancholy. While in this condition he made a determined attempt to commit suicide by jumping head foremost out of the window. A few days after this incident he began to brighten up considerably. All medication was withheld from February 10 to 18, when he was placed upon a tonic of iron, quinine, and strychnia. About February 25, Drs. McKennan, Dickson, Dean, and myself held a consultation to consider the advisability of an operation. My own diagnosis was a tumor in the cerebellum, probably on the left side. The other gentlemen did not feel so sure of the location of the trouble,

[1] Referred to me by Dr. D. A. Dean, February 10, 1894.

and the point was raised especially by Dr. Dickson that, as some improvement had taken place since the patient was admitted to the hospital, it would be best to postpone operation and continue the tonic treatment the patient was then taking. On the whole, although only ten days before the patient's condition had seemed critical in the extreme, improvement since that time had been clear and unmistakable, and I concurred with the other gentlemen in thinking it would be wisest to persist in medical treatment for a time at least, or while the patient continued to improve, rather than subject him to an operation on the cerebellum, from the direct effects of which he would run 77 chances out of 100 of dying.[1]

So the simple tonic treatment mentioned was continued, the patient improving rapidly all the while. By March 1 his headaches, mental symptoms, and ataxia, in fact all his symptoms except his failure of vision, had disappeared. About March 1 I started him on a course of electrical treatment, consisting of general faradization besides galvanism to the head three times a week. This treatment is being pursued at the time I write (May 1, 1894). The only symptoms now present are great impairment of vision due to the optic atrophy (and this is apparently not increasing), and slight numbness in both legs.

The man's system was thoroughly saturated with iodide of potassium when I first saw him, and I felt all the good which was possible had been accomplished by giving him that drug. Indeed, it is not impossible, as suggested by Dr. Dickson, it may have in some way aggravated his symptoms. Certain it is that rapid improvement soon followed its withdrawal.

Notwithstanding all this improvement, I still believe there is a tumor in the cerebellum. In view of the fact that the mortality attending operations on the cerebellum is four times that attending operations on the cerebrum, it seems to me there is little question that the withholding an operation under circumstances such as I have detailed in this case is the proper course to pursue.

While we cannot hope to remove intracranial tumors by means of medication or even electricity (not even, I believe, gummata), yet clinical studies and post-mortem records seem to show that these neoplasms sometimes attain their maximum growth and then remain as foreign bodies, more or less innocuous, for years. Indeed, there is reason to believe that there may be shrivelling or contraction of the tumor-mass after it has attained its maximum growth, particularly in the case of syphilitic growths.

Two cases of Jacksonian epilepsy, in which intracranial growths

[1] McBurney and Starr, loc. cit.

or irritants were localized, and the question of operation presented itself, I will refer to briefly as they have already been published.[1]

CASE III.—Young lady, aged 21 years; had spells at irregular intervals since the age of 6. For past four years they have recurred with frequency in the following manner: The muscles about the left eye become first involved; then the shoulder, arm, forearm, and hand of the same side in the order named. The forearm is pronated and partially flexed, and in this position drawn behind the back. The thigh, leg, and foot become involved last. The leg and foot are partly flexed, and in this position strongly abducted. The whole attack lasts about a minute. Consciousness is preserved throughout the attack.

A peculiar indescribable feeling warns the patient of an approaching attack. The spasms cause her much inconvenience, but do not threaten her life or prevent her from attending to household duties. The symptoms in this case had been stationary for several years, and I believe it is one in which the question of operation might be decided by the patient herself after fairly stating to her the dangers and the chances of cure or improvement. This was done, and in view of the fact that she grows no worse, she is loath to decide for the operation. Tonic and antispasmodic treatment are given her from time to time.

CASE IV.—Widow aged about 45. Ten years ago she was taken with convulsive movements, confined to the toes of the right foot, the initial movement starting in the great toe. These movements recurred about once a month for a year or two. At the end of this time the seizures began to involve the leg and thigh. Then for a couple of years she was free from convulsive movements of any sort. Again the seizures came back, and she continued to have them at longer or shorter intervals up to last winter (1891–92,) when she experienced the last attack. This began in the right great toe and progressively involved foot, leg, and thigh.

Full consciousness was preserved during all these attacks. She has had for years various head pains, at times, quite severe. There is an area of tenderness just to the left of the sagittal suture about one and a half inches behind the coronal. When last seen (two years ago) her general health was quite good and she had not suffered from headaches or spasms for some months past.

Here the symptoms clearly pointed to the centre for the right great toe as the seat of a focal lesion of some sort. But in view of the frequency of the attacks, the length of time the trouble had existed without seriously interfering with her occupation and the exceptionally good health she was enjoying at the time that she was observed, I did not feel an operation was indicated.

[1] Pittsburg Medical Review, November, 1892.

In bringing these remarks to a close, I must reiterate my profound admiration for the vast amount of work which has been done in the matter of cerebral localization. Yet it is surely our duty to look squarely in the face the failures and practical difficulties which beset these operations, and not be led away by the brilliancy of localization. We must mean by a success something more than recovery from the effects of an operation. We must recognize, I believe, that not all intracranial growths which can be definitely or approximately localized are proper cases for a surgical operation. We must realize, as pointed out by the late Professor Agnew[1] in the last paper from his pen which was published, that these operations will have a strictly limited field in spite of our rich and growing knowledge of the functions of the brain.

As a very important matter, too much neglected in the past, results of operations should be given in detail at a considerable period after the operation, with a careful and impartial estimate of the conditions before and after the operation.

It would be a matter of the greatest interest if the subsequent histories, up to the present date, could be given of all the cases which have been operated upon. I had myself hoped to engage in such an investigation, but found, after the idea occurred to me, that I would not have time to complete it before this meeting of the Association.

NOTES ON SOME CASES OF CONGENITAL MALFORMATIONS OF THE FACE AND EARS.

By C. A. Hamann, M.D.,

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Case I.—A. H., aged 23 years, whom I had the privilege of examining by the courtesy of Dr. H. S. Straight, presents several interesting congenital defects. There is no deformity in either of his parents, nor in any of his brothers or sisters.

On the right cheek there is a circular depression one and one-half inches behind the angle of the mouth. This depression or dimple is one-eighth of an inch in depth and one-sixth of an inch in diameter. One and one-half inches above it, just in front of the tragus, there is another depression, rather larger than the former.

The right external auditory meatus is entirely absent. Corresponding to the position of the tragus there is an irregular mass which

[1] University Medical Magazine.

projects three-fourths of an inch from the surface, and is about an inch long. In its interior it evidently contains cartilage. The auricle is otherwise well formed.

The right ramus and angle of the mandible are smaller than the corresponding parts on the left side. All the teeth in the inferior dental arch are present. The temporo-mandibular articulation and the coronoid process are apparently normal.

On the left cheek there is also a fistulous opening leading to a canal, about one inch long, which passes subcutaneously towards the auricle. According to the patient's statement, this opening was at one time larger than at present, and from it issued a sticky fluid. The left pinna is small and deformed. There is an opening, leading to a short blind canal, at the extremity of the helix, and a supernumerary auricle exists in front of the tragus. The accompanying illustrations well represent the appearance of the patient. In a subjoined note, by Dr. Straight, the aural and pharyngeal condition are further described.

Upon examining the patient for other peculiarities, we find the breasts to be rather large and the lower portion of the abdomen rather protuberant, giving rise to an appearance approaching that of a female.

Near the end of the coccyx is a somewhat funnel-shaped depression, into which the tip of the little finger can be placed.

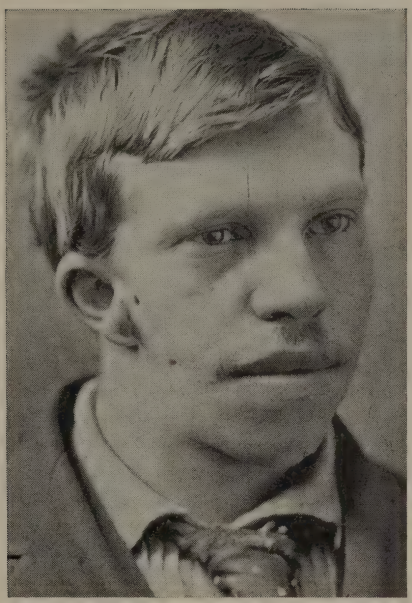
Case II.—Mrs. A., whom I saw by the courtesy of Dr. Dudley P. Allen, has a deformed auricle on the right side. Near the top of the pinna there is a shallow circular depression. The meatus auditorius externus is entirely absent. She fails to hear the ticking of a watch when applied to the side of the head. On the left side there is a small supernumerary tragus. No other defects exist. Her father presents almost identically the same deformity of the right ear.

To explain the facial deformities in the first case we must assume some grave defect in the formative processes in connection with the first visceral arch and cleft. The dimples and fistulous tract in the cheek may be accounted for, according to Bland Sutton, and others, by assuming an irregularity in the closure of the mandibular fissure. This fissure, which is between the superior and inferior maxillary processes, is relatively much wider in early embryonic life. It closes, however, in its posterior or dorsal portion, leaving the anterior portion open, and thus forming the mouth. When the fissure fails to close to the proper extent, the condition known as macrostoma results. When, on the contrary, the margins unite too extensively, microstoma results. Irregularity in the closure may, as above stated, lead to the production of dimples and fistulous tracts in the cheek.

As His[1] has shown, the pinna is formed by the fusion of six

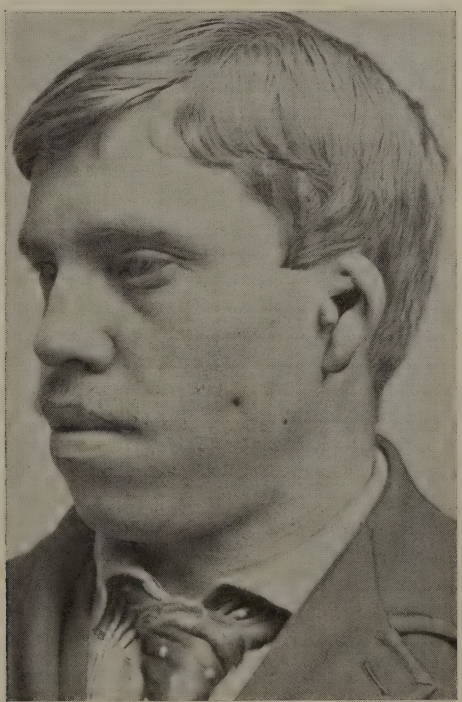
[1] Anat. Mensch. Embryonen.

FIG. 1.



CONGENITAL MALFORMATIONS OF FACE AND EARS. Right side.

FIG. 2.



CONGENITAL MALFORMATIONS OF FACE AND EARS. Left side.

tubercles, which surround the opening of the first branchial cleft or furrow. Defective fusion of two or more adjacent tubercles may, as Sutton suggests, result in the production of an auricular fistula. An irregular and aberrant development of the tubercle forming the tragus may account for the fibro-cartilaginous mass occupying the position of the tragus.

The external opening of an auricular fistula may become occluded, and subsequently, from the accumulation of the secretion of the epithelial lining of the canal, a cyst may form. Lannelongue[1] pictures such a case, and I have seen a similar one during the past winter. That rudimentary forms of the pinna are sometimes associated with failure in the proper development of one or both sides of the lower jaw is a fact first alluded to by Allen Thomson.

In connection with the depression near the tip of the coccyx, a few remarks may not be out of place.

Ecker,[2] in an elaborate and interesting article, has described this depression (though it had previously been referred to by Luschka), and gives his view as to its origin. This dimple, or *foveola coccygea*, as he terms it, is seen not infrequently in infants and occasionally in adults.

When the skin over the sacral and coccygeal region is removed carefully from the subjacent parts, there will be found extending from the tip of the coccyx to the overlying integument a band of fibrous tissue, which was described by Luschka,[3] under the name of the *ligamentum caudale* or *ligamentum apicis coccygis*. Ecker states that in cases in which the foveola is conspicuous, this "ligament" is attached to the bottom of the depression.

In human embryos of four to six months there is a distinct tail-like projection of the posterior or lower end of the vertebral column, as the researches of His, Keibel, and others have shown. Subsequently, with the increased curvature of the sacrum and other changes, this projection disappears; but even in later fetal life, and indeed in young children, the axis of the pelvis is less curved than in adults; in other words, the curvature of the sacrum and coccyx is less marked.

From the fact that there is a connection between the tip of the coccyx and the overlying integument through the medium of the ligamentum caudale, it may be reasoned that the increase in the curvature of these bones has caused a drawing-in of the integument over the tip of the coccyx, producing the so-called foveola coccygea.

A case reported by M. Braun, quoted by Wiedersheim,[4] in which there was a distinctly projecting tail, as well as a foveola coccygea,

[1] Affections Congénitales, par Lannelongue et Menard, Paris, 1891, t. I, p. 221.
[2] Archiv f. Anthropologie, Bd. XII.
[3] Anat. des Beckens.
[4] Der Bau des Menschen, etc., Freiburg, 1893, pp. 24.

militates somewhat against Ecker's view. Another explanation that has been given for the mode of origin of the foveola is that there is an imperfect fusion of the two sides of the body, resulting in the production of the depression. It is stated that the depression might extend more deeply, becoming separated from the skin; a closed sac might thus be formed, and from the proliferation of epithelial tissue in its interior a dermoid cyst result.

Further Note Concerning Case I.

A. H. presented himself at the dispensary, complaining of his throat. He had a hypertrophic rhinitis, also a deviation of the septum that nearly occluded the left nasal passage, and a marked inflammation of the naso-pharynx, pharynx, and larynx. The deviation of the septum was removed with a Bosworth saw. The hypertrophies were cauterized with the galvano-cautery and astringent applications made to the pharynx and larynx. The condition of his ears was interesting. In cases like this, in which the auricles are deformed, the rule is that the external auditory canal and the middle and internal ear show most marked changes from the normal on the side of greatest auricular deformity. This was not true in his case. The left ear, aside from the changes in the auricle already mentioned, was normal, except that the external auditory canal was narrower than ordinarily. This narrowing was due to an exaggeration of the normal curve in the floor of the bony portion. He had an inflammation of the left middle ear, which rapidly improved under the ordinary treatment. Upon the right side he had no external auditory canal. The position of the canal was occupied by bone, in which no sinus or depression could be detected. He could hear a watch upon aural contact only. The watch was heard more distinctly upon mastoid contact. He could not hear a tuning-fork through the air. The bone conduction, however, seemed to be perfect. Upon using Politzer's air-bag, he said he could feel pressure in the ear. Upon using the Eustachian catheter, he said he could feel the air deep in his ear, and that it felt cold. Inflation with air-bag or catheter made no difference in his hearing. He had had a tinnitus, however, at times for two years, and this condition was relieved by the treatment. He probably has upon the right side a complete development of the ear with the exception of the external auditory canal. It seems reasonable, at least, to infer that he has an internal and a middle ear. What is the condition of the tympanic membrane and the auditory ossicles is a question.

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MASTOID DISEASE FOLLOWING EPIDEMIC "LA GRIPPE."

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Inflammation of the mastoid as a complication or sequel of la grippe is not an uncommon affection.

As is well known, epidemic influenza manifests itself through the muscular, nervous, or respiratory systems, and it is in this latter form that the disease is prone to extend to the middle ear.

There are several causes which predispose to this aural extension. Patients who are the subjects of chronic naso-pharyngitis, of fibro-blastic catarrh of the middle ear, or of chronic otitis media suppurata are apt to have aural complications when attacked with influenza.

Symptoms.—The patient, of course, presents the usual clinical history of acute inflammation of the naso-pharynx,—nasal occlusion, hypersecretion, sneezing, headache, fever, etc., followed after a variable length of time by an increase in the fever, which sometimes rises to 103° F. or 104° F., a running pulse, and pain more or less severe, referred to the ear and to the region of the Eustachian tubes.

Examination shows the turbinated processes to be congested and swollen, the mucous membrane red and inflamed, and the nasal chambers filled with mucus or muco-purulent secretion.

The pharynx shows an analogous state of affairs. Rhinoscopic examination, which, however, is rarely possible, would find the lips of the Eustachian orifices very much swollen, and the tubes more or less impatulous.

On inserting the aural speculum we notice, first, that the patient winces, the pulling forward of the auricle causing traction on the membrana tympani. The appearance of the drum membrane varies according to the stage of the disease, its severity, and, lastly, the condition of the parts prior to the attack of influenza. If examined early we would find only congestion of the manubrial plexus, which later extends to the upper quadrant, and finally involves the entire drum membrane. The congestion may range from a simple flushing to an intense, angry, dark red. In exceptional cases there are ecchymoses and blebs upon the surface of the drum. There is always more or less bulging of the membrane as a whole or in part. If the ear has previously been the seat of fibro-blastic catarrh, with adhesions between the promontory and membrana tympani, the bulging will be less in degree and irregular in contour. In the course of a few days the membrane is ruptured and a sero-sanguineous fluid exudes, which eventually

becomes purulent. Coincident with the perforation of the drum the pain usually moderates. If the case is a mild one, the pain finally ceases and the discharge disappears. If, however, the case is a severe one, or if it is improperly treated, a different picture is presented to us. The inflammatory process, not content with attacking the middle ear, extends to the mastoid sinuses.

In addition, then, to the symptoms previously stated we have pain of varying intensity over the mastoid process. Sometimes the pain assumes the character of a hemicrania. The tissues behind the auricle become swollen, tender, and inflamed. The skin is hot and of a reddish tinge. The pathological condition underlying these symptoms is not always the same, but ranges from a simple septic congestion of the lining of the mastoid cells to a suppurative inflammation involving the whole mastoid process and extending to the tissues covering its outer surface. Sometimes these symptoms are caused by a septic infection of the cellular tissue over the mastoid, which cellulitis may or may not go on to suppuration. In these cases the process may start from without and then travel inward by extending to the periosteum, necrosing the bone, and possibly involving the mastoid cells.

Two very important facts should be borne in mind,—viz., that in mastoid disease the inflammatory process usually extends from within outward, but the process may be reversed, and that the symptoms are largely the same in all cases and differ only in intensity.

The utmost nicety of discrimination is often needed to determine the exact stage of the inflammatory process involving the mastoid. However, as the disease advances the symptoms become more marked, —the pain becomes more intense, the tenderness more pronounced, the patient has rigors, and finally signs of abscess over the mastoid present themselves. The tissues here are so dense that frequently the abscess will open into the external auditory canal rather than behind the auricle.

Diagnosis.—This is both easy and difficult,—easy as regards involvement of the mastoid process as a whole, and difficult as regards the exact state of affairs. What is meant is this: that it is difficult to determine at first whether the symptoms are caused by septic congestion of the mastoid cells, by a suppurative inflammation of the cells with secretion of pus, or by a septic periostitis with necrosis of bone. Each of these conditions, singly or together, constitutes what is known as mastoid disease.

It is important to differentiate between mastoid disease and a condition which is often mistaken for it,—viz., a septic inflammation of the cellular tissue surrounding the auricle, and which occurs in acute otitis media suppurata, attended with a profuse purulent discharge. The

tissues in the parotid and submaxillary regions and over the mastoid process become tender and swollen and the skin hot and reddened. In addition to this we sometimes find swelling of the walls of the external auditory canal, due also to septic infection.

The differential points are,—

(1) In mastoid disease the tenderness, pain, and swelling are confined to the mastoid region. If the tissues in the parotid and submaxillary regions become inflamed, it is by extension from the postauricular area, and then the constitutional disturbance would be most profound.

(2) In septic cellulitis the constitutional disturbance is slight. The preauricular tissues become infected first or simultaneously with those behind the auricle. The differential diagnosis should be easy.

Prognosis.—This depends upon the severity of the case. It should always be guarded. Prompt treatment of the proper kind will nearly always yield good results and effect a cure. It is, however, an exceedingly dangerous affection, and may prove fatal by extension through the floor of the middle cerebral fossa and the formation of a cerebral abscess. The effect on the general health, if the disease is of any duration, is quite disastrous. The patient becomes greatly exhausted and the vital powers are severely taxed. The hearing is generally more or less impaired.

Treatment.—The purpose of this paper is the outlining of a plan of treatment which will, in the writer's opinion, reduce to a minimum the chances of mastoid disease supervening in the course of a case of acute otitis media suppurata following la grippe, and, furthermore, the proper handling of the case after such a complication has arisen.

The treatment is both local and general.

Local Treatment.—Sedative and astringent sprays to the nasal chambers such as the following:

℞ Sodii bicarb.,
Sodii biborati, āā gr. ij.
Acidi carbolici, gr. i.
Glycerini, f℥ss.
Aquæ, q. s. ad. f℥i.

Or

℞ Extr. hamamelidis destil.,
Aquæ rosæ, āā ℥ij.

It is rather difficult to obtain a good preparation of witch-hazel, as most of them contain irritating oils that render the extract deleterious rather than beneficial. There is a small quantity of tannic acid in the rose-water, which adds to the astringent action of the hamamelis.

It is important that the spray trickle down the posterior wall of

the pharynx, as by so doing the muco-pus lying in the naso-pharynx and around the orifice of the Eustachian tubes is washed away. This is then followed by an oil protective,—viz., mentholated albolene, gr. v to the f℥i.

If the nostrils are occluded by the swollen turbinates, a 5-per-cent. solution of hydrochlorate of cocaine on a cotton pledget, placed between the turbinated process and septum, will generally reduce the obstruction. Sometimes, however, the congestion is so great that a 5-per-cent. solution will make no impression whatever. In such a case a 6, 7, or 8 per cent. may be employed, but should be used no stronger, as then it becomes dangerous. The result at best is only temporary, yet the relief for the time being is great, so much so that the physician is often tempted to renew the application at frequent intervals. This he must not do, as there then results a vaso-motor paralysis of the nasal blood-vessels that causes a secondary congestion worse than that which existed before.

Pharynx.—If there is but a moderate amount of congestion, the throat should be sprayed with the following mixture:

℞ Potassii chlor., gr. xv.
Acidi carbol. (crystals), gr. i.
Glycerini, f℥i.
Aquæ, q. s. ad. f℥i.,

followed by a spray of mentholated albolene, gr. x to the f℥i; or by glycerite of tannin, gr. cxx to f℥i; or by equal parts of the tincture of the chloride of iron and glycerin applied to the part on cotton tufts if the inflammation is more severe. Tincture of iodine should be painted over the mastoid and repeated daily.

Naso-pharyngeal treatment is highly essential, as by it we not only reduce the inflammation there existing, but also lessen the swelling of the Eustachian orifices and tubes, and thereby provide *internal drainage* for the middle ear.

Ear.—If the membrana tympani has not yet been ruptured, our treatment should be directed towards hastening that event. Two means are at our disposal,—viz., applications of heat to the ear and paracentesis. The former can be applied in the form of flaxseed poultices; towels wrung out in very hot water, and placed in the fold of a dry one; or hot-water bags. The last is the most preferable.

If, in the course of twenty-four or forty-eight hours, the drum be not perforated, paracentesis should be performed. The hot applications can then be continued for some days longer, to facilitate the flow of the discharge. A word of caution is here needed. Prolonged use of the heat will cause a bogginess of the external auditory canal,

and, by retarding the flow, tend to hasten that which we wish to avoid, —mastoid disease.

If there are any blebs on the drum they should be punctured.

Sometimes the perforation in the drum is too small. The discharge has difficulty in passing out of the middle ear, and, in consequence, there may be pain, tenderness and swelling over the mastoid, and serious trouble may result. In such a case the perforation should be enlarged with a sharp knife, applied to the edges of the perforation. This done, the threatening symptoms generally subside.

The canal must then be daily cleansed with injections of hot carbolized water, one to fifty (1–50), a full pint being used at each irrigation.

In addition to the antiseptic, anesthetic action of the carbolic acid, we have the astringent and sedative effect of the hot water. By its use the patient usually experiences marked relief from pain. For the first few days this can be done three or four times daily. After that once a day suffices. Under no circumstances should the canal be cleansed by mopping with cotton tufts, our usual procedure in cases of otorrhea. The reason is twofold: first, because the parts are too sensitive, and, secondly, because by so doing we would run the risk of damming the discharge back into the middle ear, thus forcing it eventually into the mastoid cells.

No powders of any kind are to be thrown into the canal at this stage. They serve no good purpose, but, on the other hand, interfere with the free exit of the discharge. Later on in the case, when the acute symptoms have subsided, they form an important part of the treatment. Politzeration must not be employed until the more acute symptoms have subsided, as, until then, it is too painful, and, if not, it is futile, because of the tube being impatulous. Cotton plugs must not be used, as the discharge must be given every facility for making its exit.

Instillations of cocaine, atropine, or morphine, are useless, nay, frequently dangerous, especially that of cocaine.

If there is tenderness and swelling over the mastoid region, the surface should be painted daily with tincture of iodine, at first, until the skin will no longer absorb the drug. This, in conjunction with the treatment just outlined, will generally prevent any extension of the mastoid trouble. If, however, they persist, leeches should be applied over the mastoid, or better, the part can be blistered with cantharidal collodion. It is very seldom that this treatment, when faithfully carried out, fails to accomplish its purpose.

But if, in spite of all that we have done, the mastoid symptoms continue, a free incision (Wilde's) through the tissues down to the

periosteum should be made. We need not be disappointed, nor surprised, if no pus, but blood only, exudes. The bloodletting is beneficial.

If, however, pus is found, the periosteum should be explored, and if dead bone is found we should be then prepared to open the mastoid sinuses. What the writer wishes to emphasize is that there is no need of haste in resorting to this last-mentioned procedure, as soon as one is confronted with signs of mastoid disease. When such symptoms first present themselves, the milder and less dangerous measures should be tried, and only after these have failed should the mastoid be trephined. The reasons are obvious,—(1) trephining is a dangerous operation, except in expert hands.

(2) The wound is usually slow in healing, except in cases of the milder type,—namely, where we have no involvement of the bone. In these there is generally union by first intention. But these are the very cases in which the operation is wholly unjustifiable.

(3) An unsightly scar remains after the wound is closed.

(4) If the wound fails to unite, there is left a suppurating sinus, which not rarely proves intractable.

Certainly none of these reasons would deter us from performing the operation, if by so doing life could be saved. But to cut down upon the mastoid, and to open the sinuses for the sole purpose of ascertaining whether or not there is pus within them, without having first had sufficient symptoms to warrant the supposition that pus would be found, is, I think, to be condemned. Neither should the operation be delayed until the patient's strength is exhausted, or until one is confronted with signs of cerebral abscess, as then the case is almost invariably fatal.

Finally, if, from whatever cause, the pus has worked its way from the mastoid cells to the surface, two different forms of treatment are applicable,—the expectant and the radical.

The expectant treatment consists in—

(1) Treating the otorrhea according to the method previously stated.

(2) Cleansing the sinus by injections of warm carbolized solution (1–40) followed by a dressing of iodoform or resorcin. The sinus must be kept open by means of sterilized gauze. This method is very tedious.

The radical treatment consists in cutting down upon the dead bone, and removing it.

General Treatment.—Until the acute symptoms have subsided, the patient should be kept in bed. After that, confinement to the room or house alone is necessary.

If the case is seen at its onset, a ten-grain Dover's powder may be given.

Aconite and belladonna are sometimes indicated, the former to reduce arterial tension ; the latter to lessen the nasal hypersecretion.

For the fever, sponging of the body with cold water or alcohol, etc.

Quinine, antifebrin, antipyrin, salol, and other coal-tar products, are contraindicated, owing to their action in congesting the inner ear.

For the pain, if severe, morphine is always indicated.

The strength of the patient should be sustained by generous and well-selected liquid diet.

In conclusion, the following cases taken from the records of the Philadelphia Polyclinic Hospital, service of Professor Ralph W. Seiss, are submitted as bearing upon the points in question :

Case I.—Mrs. M. D. January 19, 1894. Ear inflamed for past two weeks. Mastoid swollen, red, and tender. Active acute otorrhea with marked discharge. Hyperpyrexia and running pulse. Anterior perforation.

Treatment.—Iodine to the mastoid. Hot antiseptic irrigation. Sedative sprays to naso-pharynx.

February 2, 1894. Mastoid quiet. Very slight discharge from perforation. Latter closing.

February 7, 1894. Perforation closed. No mastoid blush, nor tenderness. Hearing scarcely impaired.

Case II.—F. O'B., aged 9 years. January 3, 1894. Right ear discharging for past two days. Mastoid swollen and blushing. Febrile symptoms marked. Examination shows a ragged perforation in the membrana tympani of right ear. Canal filled with pus. Child shows very septic coryza.

Treatment. — Antiseptic irrigation. Sedative naso-pharyngeal sprays. Iodine to the mastoid.

February 9, 1894. Perforation closed. Patient almost well. Hearing unimpaired.

Intubation of the Larynx.

In answer to a letter addressed by Dr. George McNaughton, of Brooklyn, reports were read from 242 physicians in various parts of the country, bearing on the relative mortality after intubation and tracheotomy. Of 2417 tracheotomies, 586 ended in recovery, or 24.2 per cent. ; of 5547 intubations, 1691 ended in recovery, or 30.5 per cent.

ALUMNI NOTES.

Dr. Charles A. Oliver, '76, has been elected an Honorary Fellow of the Chicago Academy of Medicine

Dr. W. W. Bulette, Class of '88, formerly located in Philadelphia, has located permanently in Pueblo, Colorado.

The following graduates of the Medical Department of the University of Pennsylvania have been elected to fill chairs at the Medico-Chirurgical College : Dr. Isaac Ott, '69, to be Professor of Physiology ; Dr. William C. Hollopeter, '78, to be Clinical Professor of Diseases of Children and Pediatrics ; Dr. William E. Hughes, '80, to be Professor of Clinical Medicine ; Dr. Edward B. Gleason, '80, to be Clinical Professor of Otology ; Dr. Albert E. Roussell, '82, to be Assistant Professor of Clinical Medicine and of the Practice of Medicine ; Dr. Charles W. Burr, '86, to be Clinical Professor of Nervous Diseases ; Dr. Arthur H. Cleveland, '89, to be Clinical Professor of Laryngology.

ANNUAL MEETING OF THE AMERICAN ACADEMY OF MEDICINE.

The Nineteenth Annual Meeting of the American Academy of Medicine will be held at the "Waumbek," Jefferson, N. H., on Wednesday and Thursday, August 29 and 30, 1894. The Medico-social Relations of the Medical Profession to the "Dependent Classes" will receive extended discussion. Arrangements have been made for a special excursion from New York and Boston and return at reduced rates. Additional information may be obtained from Charles McIntire, Secretary, Easton, Pa.

The Number of Students in German Universities.

The following figures show the number of students in the medical schools of each of the universities of the German empire during the present (1893–94) semester : Berlin, 1278 ; Munich, 1114 ; Leipzig, 788; Würzburg, 746 ; Griefswald, 380 ; Freiburg, 342 ; Erlangen, 338 ; Strasburg, 299 ; Breslau, 287 ; Kiel, 257 ; Bonn, 247 ; Tübingen, 235 ; Halle, 234 ; Königsberg, 230 ; Heidelberg, 218 ; Marburg, 216 ; Jena, 196 ; Göttingen, 192 ; Rostock, 120 ; and Giessen, 96. The total number of medical students in the twenty universities is therefore 7714, being a decrease of 335 as compared with the corresponding period of 1892–93.—*British Medical Journal.*

EDITORIAL.

PIPERAZINE.

PIPERAZINE is a drug which of late has attracted considerable attention. It has been alternately praised and condemned. The negative results which have followed its use have been due, in some instances, no doubt, to the employment of inferior preparations. Its discovery may be said to have been accidental, since it resulted from an unsuccessful attempt to produce synthetically spermine, the supposed active principle of testicular juice. Piperazine appears in commerce as white, odorless, tasteless, deliquescent crystals which are freely soluble in water, the resulting solution being intensely alkaline. Interest in the compound centres around its property of uniting in watery solutions with uric acid, of which it dissolves twelve times as much as the carbonate of lithium, while the piperazine urate thus formed is seven times more soluble in water than the corresponding salt of lithium. When taken internally it exerts no deleterious effect on the system; part of that which is injected being oxidized, and part being eliminated in the urine unchanged. When the kidneys are in a healthy state it generally causes a decided increase in the flow of urine.

A few observers, like Mendelssohn, deny that it has any solvent action whatever on uric acid, either within or without the body; but, on the other hand, Bardet, Holtz, Heubach, Krakaner, Biesenthal, Schmidt, Wittzack, and Stewart bear testimony as to its clinical value in the uric acid diathesis. Wittzack concludes from his experiments that it does not possess any solvent action on uric acid, but collects the uric acid in the body, combines with it, and then escapes in the urine. Gordon (*British Medical Journal*, January 16, 1894) has published the most recent contribution to the subject; the results of his investigations are as follows:

Piperazine is not wholly oxidized in the body, and may be detected in the urine of those to whom it is exhibited.

Piperazine in solutions of 1 per cent. in normal urine, when kept in contact at a temperature of 39° C. (body temperature) for a given time, has the property of dissolving to a great extent a fragment of a uric acid calculus.

That the stronger the solution of piperazine in urine (up to 7.5

per cent.) the earlier did the solvent action begin and the more rapid was the completion.

That, notwithstanding this, with the stronger solutions of piperazine in urine the rate of solubility was not so markedly rapid over the weaker solutions as might be expected.

That this solvent action of piperazine in similar circumstances was greater than any other of the substances that were employed,—namely, borax, lithium citrate, sodium carbonate, and potassium citrate.

That piperazine, in weak and strong solutions, in urine converted the undissolved portion of calculus into a soft granular or pulpy condition.

That neither borax, lithium citrate, sodium carbonate, nor potassium citrate in similar circumstances rendered the fragment of calculus soft or pulpy.

In our own hands the remedy has yielded distinctly satisfactory results. While it has not proved a specific in gout, calculous pyelitis, and other manifestation of the uric acid diathesis, we believe that in conjunction with good hygienic regulations and other time-honored remedies it has rendered considerable service. In rheumatism it appears to be of little value, and in rheumatoid arthritis, like other antilithic remedies, it is absolutely useless. It is best administered dissolved in large draughts of water, in doses of five grains, three times a day. Now that the cost of the drug has been greatly reduced, we hope that other investigators will be led to study it so that its exact therapeutic value may be determined.

SPECIALISM IN MEDICINE.

In the admirable valedictory address, delivered by Professor L. A. Duhring, to the graduating classes in Medicine, Dentistry, and Veterinary Medicine, of the University, and which is published in another part of the Magazine, will be found some timely remarks on what constitutes specialism in medicine, and what should be the qualifications of those who elect to become specialists.

No one can deny that the science of medicine is distinctly advanced by specialism, or that the profession and laity are alike benefited by the devotion of the time and energies of a certain number of men to special departments of practice; but it is questionable whether or not there is room in any community for the increasing number of graduates who are anxious to engage in special work. As Dr. Duhring observes,

the tendency of the day is towards specialism, and doubtless many are drawn towards it by the promise of material reward, the hope of distinction, or a passing fancy, who lack the natural qualifications necessary for success. The practice which is now becoming common of devoting time and talents exclusively to a specialty immediately after receiving the medical degree or even after a year's hospital experience cannot be too strongly condemned. In the first place, few men know at that early stage of their careers to what special work they are best suited, and, in the second place, the diseases of the various organs are so interdependent that an intimate knowledge of one can be acquired only through a fair general knowledge of all. With few exceptions, those who have attained to great eminence in special work have had a good preparatory training in general medicine.

Specialism narrows the streams of thought, even though it deepens them, and a few years' experience in all-around medical work cannot help but have a broadening influence on the mind, which will be of the greatest service in the event of subsequently devoting one's time to a special branch of medicine.

We heartily endorse the views expressed by Dr. Duhring, and strongly recommend those recent graduates who are about to begin practice to read the address thoughtfully before deciding at once upon a specialty.

The Examination of Gynecological Specimens.

In order to extend the usefulness of the Pathological Laboratory of the Gynecological Department of the University of Pennsylvania, the following plan has been adopted:

Any physician may send to the pathological laboratory any specimen for examination on which the diagnosis or the prognosis of a gynecological case may depend. A fee of five dollars will be charged for such examination in case the patient is able to pay. If the physician states that his patient is too poor to pay, the examination will be made free. The necessity for some arrangement of this kind, especially in making an early diagnosis of malignant disease of the uterus, is widely felt.

This offer applies to private, not to hospital, patients. The specimen should be placed in 95 per cent. alcohol, and directed to the Professor of Gynecology, Hospital of the University of Pennsylvania, 3400 Spruce Street, Philadelphia.

A brief history of the case should be sent with each specimen.

A report will be returned to the physician within two weeks after the receipt of the specimen.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D.

Treatment of Acroparesthesia.

Dr. Wharton Sinkler presented a paper to the State Medical Society of Pennsylvania at their annual meeting in May, 1894, on this subject. He referred to a communication which he had presented to the College of Physicians of Philadelphia in 1884, in which he related several cases of paresthesia of the extremities, and then expressed the belief that the affection was a vaso-motor neurosis.

The disease occurs most frequently in women at the change of life, but it may be met with at other periods of life; and men are also subject to the same affection. Within the past few years a number of papers on this subject have been written. Among the most important are those of Laquer, Schultze, and Collins.

Laquer applied the name of acroparesthesia to the disease, and refers to it as a new "syndroma," which occurs in women from 35 to 50 years of age. He described the usual symptoms, but did not formulate any theory as to the pathology of the affection. He found in the way of treatment that electricity gave relief, and sometimes cessation of the symptoms.

Schultze believed that the affection was not dependent upon any special influence of the menopause, but considered it a functional disturbance, and unsatisfactory to treat.

Collins found that the affection was most frequently met with in women who used the hands in manual labor, and regarded it as dependent upon the alteration in the blood-supply. He met six different types of the affection: the emotional, the mental, the neurasthenic, the toxic, waking numbness, and a form which he called occupation paresthesia.

All of these different writers differed in regard to treatment, but all agreed that, while the disease was readily palliated, it was tedious in becoming permanently cured. Some of the authors recommended strychnia and phosphorus; others, bromides; and others, electricity and general tonic treatment. All are of the opinion that the affection is dependent, to a great extent, upon a depressed condition of the nervous system, and recommend building up of the general health.

Dr. Sinkler emphasizes the fact that his experience had shown him that there are certain remedies which are directly curative in the treatment of the disease. On the view that the affection was, in many instances, a form of peripheral neuritis, in which there was hyperemia of the terminal nerve filaments, he had for years administered ergot, on account of its well-known property of contracting

the arterioles, and had invariably seen prompt relief from the administration of this drug. He considered it important, in connection with the exhibition of ergot, to carefully look to the general health of the patient. Massage and electricity are always useful adjuvants, and a general tonic treatment is necessary for the restoration of the general health. Relapses sometimes occur, but they usually yield readily to the same plan of treatment.

MENTAL DISORDER AS A SYMPTOM IN DISEASES OF THE NERVOUS SYSTEM.

PIETERSEN (*Birmingham Medical Review*, April, 1894) has an interesting article on the above subject, in which he gives the different forms of mental aberration connected with the various diseases of the nervous system. Delirium is a direct result of meningitis of whatever form. In tubercular meningitis of the cerebral dome, headache and delirium may be the chief signs. The delirium usually occurs earlier in adults than in children. Chronic meningitis is a cause of idiocy in children. In chronic alcoholic meningitis the mental symptoms are mental defect, headache, and delirium.

General cerebral anemia when of gradual onset may cause slowness of thought and a state of mental apathy. Chlorosis, anemia of lactation, and phthisis may cause such symptoms. In the child, if the anemia is long continued, it may cause arrest of brain development. In rapid cerebral anemia there may be an outbreak of acute mania, as in starvation. In active hyperemia of the brain there may be mental excitability or irritability without actual delusions. The after-effects of cerebral hemorrhage vary from the slightest mental change to total impairment of the mental faculties. Infantile hemiplegia may cause slight loss of mental power or total idiocy. *Cerebral abscess* may cause delirium followed by stupor. *Cerebral tumors* in any situation gives rise to various mental defects,—loss of memory and depression, or there may be delusions with hallucinations. In *insular sclerosis* the patient betrays a degree of contentment out of harmony with his physical distress. In *chronic bulbar paralysis* there is peculiar emotional mobility, laughter and tears being evoked by slight causes.

Atrophy of the brain is the cause of microcephalous idiocy.

In *chronic hydrocephalus* there is a mental defect which may amount to idiocy.

Nervous affections due to nutritive changes in the nerve elements or *functional* diseases give more constant and definite mental disorders than do neuroses due to perceptible lesion.

Chorea may cause great mental excitement, either as a prodrome or at the height of the disease, or there may be true maniacal disturbance.

Paralysis agitans may cause,—(1) A change of temper and character, undue excitement over small matters, restlessness, and suspiciousness. Moroseness and irritability are the features of this class.

(2) Intellectual weakening deepening into incurable dementia.

(3) An active mental alienation.

Epilepsy, whether idiopathic or due to lesion, may cause actual insanity either before or after the fit. In the intervals there may be a decided mental change.

Infantile convulsions by their frequent recurrence may cause idiocy.

Migraine may have some mental disturbance as an antecedent. *Hysteria* has the exaggerated self-consciousness as its prominent mental peculiarity, or there may be a mental disturbance bordering closely on insanity. *Injuries* to the head may cause insanity, as may surgical operations. Locomotor ataxy furnishes fairly constant mental changes. "Mental crises" occur—short, sharp, maniacal—with delusions of suspicion, or when the disease is the forerunner of general paralysis this particular form of dementia occurs.

Clinical Study of Icterus Neonatorum.

Quisling (*Archiv für Kinderheilkunde*, Vol. xvii, Parts I and II, 1893) gives the histories of fifty cases of jaundice in the new-born. He has studied the cases thoroughly, and in all has noted the weight, time the cord was tied, pulse, temperature, and state of digestion. He considers the jaundice but one of a series of symptoms. The characteristics of the disease, of which this is a symptom, are as follows: Jaundice appearing first in the face, and especially in the conjunctivæ. This discoloration may involve the entire skin and mucous membranes. At the same time there is a greater or less disturbance of digestion, as vomiting, tympany, diarrhea, etc. Some children become restless, others sleep unduly. Fever is frequently observed. The stools are green, ill-smelling, and contain caseous lumps. The duration varies from a few days to a few weeks. Twenty-six per cent. of the children born in Christiania Lying-in Hospital had jaundice. The greatest number of cases occurred in summer. He believes this to be a higher percentage than occurs in private practice. He holds that the gastro-intestinal disturbance is of fundamental importance as the cause of the disease, or rather that this is the disease of which jaundice is but a symptom. This gastro-enteric catarrh was present in all the fifty cases. The pulse averaged between 130 and 140 in about half the cases. In but two cases it was below 100. The pulse was between 140 and 150 in half the cases. The weight of the child always diminished after birth, but reached the initial weight point in about eight days afterwards.

In the great majority of cases no treatment is necessary. In other cases the irritated intestinal tract should be treated by means of laxatives, and a regulation of the feeding. Daily baths should always be given. Sometimes bismuth in small doses is indicated.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., and ELLWOOD R. KIRBY, M.D.

A Bloodless Operation for Hemorrhoids.

Manley (*Boston Medical and Surgical Journal*, February 1, 1894) describes his bloodless method of treating hemorrhoids. A brisk purgative is given the evening before the operation. Before operating, two to four ounces of whiskey are administered and effective cocainization applied hypodermically. Anal dilatation, gradual and steady, without rupture of the muscle is done, and, after drying and mopping with cocaine solution, each hemorrhoid is separately seized, close to its base, firmly between the tip of the thumb, index, and middle fingers. It is put on full stretch, then twisted, and finally so completely crushed that it is reduced to a pulp, and none of the investing tunics remain, except the mucous membrane and its under stratum of fibrous tissue. The mass is then returned and an opium suppository introduced. He has treated thirty-two cases in this way with perfectly satisfactory results.

A Simple Method of Closing Large Operation-Wounds by Sliding Skin-Flaps.

G. F. Schrady (*Medical Record*, December 2, 1893) suggests the following method of closing the surface left after excision of the breast: Two curved incisions are made above, each beginning in the middle of the upper skin margin of the wound and extending one towards the median line and the other over towards the shoulder. Two similar curved incisions are begun in the middle of the lower skin margin and extending one towards the median line and the other towards the side. The four flaps are slid towards one another and united by sutures forming a line of union in the shape of a cross with the upper and lower ends of the longitudinal row branching out towards the median line and towards the side.

Resection of One-half of the Lower Jaw Followed Immediately by the Fitting of an Artificial Substitute.

Michaux (*Bulletin et Mémoires de la Société de Chirurgie*, 1893, p. 620) removed the half of the lower jaw for tumor in a man aged 36 years. On the completion of the operation, there was inserted a substitute jaw made of hard rubber after the method of C. Martin ("De la prothèse immédiate appliquée dans la résection des maxillaires," Paris, 1889). The wound healed by primary union. The artificial jaw was held in place by two projections,—one anterior, going to the remaining part of the lower jaw, and the other posterior, resting on the posterior portion of the superior maxillary bone. On the twelfth day the patient was moving his jaw naturally and spoke very well. The result was very satisfactory and the deformity slight.

Two Rare Varieties of Strangulated Inguinal Hernia Complicated by Retained Testicle.

Heaton (*Lancet*, January 27, 1894) describes two rare cases of hernia. The first was in a man, aged 27 years, who had had a reducible congenital hernia on the right side with undescended testicle. Strangulation occurring, the sac was opened and gut readily reduced, but the patient died on fifth day after from symptoms of internal strangulation. On post-mortem examination the testicle was found towards the iliac fossa, where it had dragged with it a pouch of peritoneum which laid between the general peritoneum and wall of the abdomen. This pouch had a diverticulum which passed into the scrotum. At the time of the operation the included intestines had been pushed from the scrotal diverticulum up into the main pouch, the opening into which from the abdominal cavity had produced the constriction.

The second case, a man aged 45 years, had an undescended left testicle, which was accompanied by a lax bag of fluid. Symptoms of strangulation occurring, an incision over the tumor gave vent to two ounces of clear hydrocele fluid; a thick-walled tumor was found at the bottom of the sac, also an atrophied testicle. The swelling being opened, about six drachms of dark serum escaped and a ragged opening was seen leading into a third sac, which contained a coil of strangulated intestine. It was evidently a strangulated hernia which had in its descent pushed before it the enlarged tunica vaginalis of an undescended testicle as it lay in the inguinal canal,—in other words, it was an example of the strangulated encysted hernia of Sir Astley Cooper.

Gastrostomy in Stricture of the Esophagus.

H. D. Niles (*Medical Record*, December 2, 1893) gives a case of cancer of the esophagus, in a woman aged 69 years, in which he performed gastrostomy. The stomach was opened three days after being sutured to the abdominal wall, and the patient died three days later. Attention is called to the fact that these cases are brought to the surgeon for operation too late. Death usually occurs either from shock or peritonitis. The author believes that in many cases operation should be the first choice of treatment, and not the last resort, as it now is.

Cleft of the Hard and Soft Palates.

Mears (*Southern Medical Record*, February, 1894) gives his method of operating in this class of cases. In cleft of the soft palate he has never found the use of an obturator satisfactory. In children, operation is always advised. In adults, where the rudimentary palatal processes have been so narrow as to forbid operation, or where the opening was not large, obturators have been used. Anesthesia by chloroform, one part, and ether, two parts, has been employed, and the patient operated on in a sitting position. Silver wire sutures of medium size are used. The tensor palati is divided near to the hamular process, and the palato-glossi and palato-pharyngei as low as they can be reached. The sutures are removed from the fifth to the seventh day. Liquid food is to be administered with a spoon.

In operations on the hard palate the method of Fergusson is preferred. The edges being freshened, the sutures are deposited through openings made by the drill in the bony processes ; these are then divided by the chisel or saw, and drawn over to the middle line. Division of the soft palate downward is necessary. In cleft of the soft palate, with notching of the palatal process, the bone is divided and brought together in the median line.

Removal of Cicatricial Tissue Resulting from an Old Empyema.

G. R. Fowler (*Medical Record*, December 30, 1893) gives the following procedure which he adopted in the treatment of an old empyema. An elliptical vertical incision, four inches long, was made in the axillary line extending downward from the fourth rib, so placed as to include the orifice of the sinus. The soft tissues were retracted from each edge of the incision, the chest-wall cleared, and about three and a half inches each of the fifth and sixth ribs removed. There was then revealed a mass of cicatricial tissue which was firmly attached to the chest-wall, through which the sinus passed in the direction of the median line of the body. This mass was isolated by blunt dissection from its attachments to the chest-wall. As the dissection advanced the mass increased in size, until it was found to extend in a downward direction to the diaphragm. It was peeled off from the latter until its limit towards the median line was reached. Here it was found to rest against the displaced pericardium. By making strong traction and working with the tips of the fingers, occasionally employing the curved blunt scissors when the adhesions were particularly dense, it was at last detached from the last-named structure. The movements of the diaphragm, as well as those of the heart, impeded the dissection, and great care was needed to prevent wounding the important parts in the neighborhood. The mass was lifted from the cavity of the chest and finally detached from the lung above. The cavity remaining comprised three-fifths of the right side of the chest. It was filled with iodoform and zinc oxide gauze. In twenty-eight days from the time of the operation the lung had expanded and the wound closed.

Death from Cocaine.

Reclus (*La Tribune Médicale*, March 29, 1894) reported to the Société de Chirurgie, 21 Mars, a case of death from cocaine. It occurred in the hands of another doctor. The patient was a man, aged 72 years, affected with enlarged prostate and retention of urine. Aspiration was performed, and the next day, it having been found again impossible to enter the bladder through the urethra, he injected twenty cubic centimetres of a 5-per-cent. solution of cocaine. The man was at once seized with tremors, became pale, and succumbed in a few minutes. Reclus states that, as a general rule, a 2-per-cent. solution only should be injected, and not more than fifteen to twenty centigrammes of it at a time. If these two rules had been observed, the accident would not have taken place.

Treatment of Old Luxations of the Shoulder.

Tillaux (*La Tribune Médicale*, January 25, 1894, p. 67) advises in old dislocations of the shoulder to first try reduction, under chloroform, by the method of Kocher and manual traction. If this fails, resort is made to the traction of assistants, not to exceed sixty kilogrammes in force; if this also fails, the patient is to be dismissed, and told to use the arm as much as possible to increase its mobility. If the case progresses favorably, and he gets to be able to use the arm satisfactorily in his occupation without severe pain, then no further intervention is to be practised. If there is excessive pain from pressure on the nerves, or if the patient is unable to use his arm, then it is justifiable to resort to the procedure of Nelaton, and make an incision, and attempt to replace the head in the glenoid cavity. If this also is found impossible, then the head of the humerus is to be resected. The patient under consideration had had his shoulder dislocated ninety-five days previously. Having failed to reduce it by Kocher's method and extension by four assistants, Tillaux desisted further attempts, and instructed the patient to return if he found he could not use his arm in his occupation, which was that of a gardener.

Treatment of Empyema.

Sutherland (*Lancet*, January 27, 1894) reviews the treatment of empyema. The abscess is opened after resection of a rib, and the pleural cavity explored with the finger, then washed out and a drainage-tube inserted. It should be long enough to enter the pleural cavity and no more, for a long tube will inevitably produce pleural irritation. The site of the opening may be selected quite apart from any consideration of drainage. The emptying of the pleural cavity is due, not to the act of gravity, but to the forcible expulsion of the fluid by the expansion of the lung and the pushing up of the diaphragm. When the sero-purulent discharge, which at first is rather excessive in amount, begins markedly to diminish, the drainage-tube ought to be removed and the wound in the chest allowed to heal as quickly as possible. Speaking generally, the third day after operation will be found a suitable time for the cessation of drainage by the tube. For a few days longer the chest wound will still remain open and allow of the escape of any superfluous secretion, and the air in the pleural cavity will be rapidly absorbed. If there is great pleural thickening, or if the discharge be thick, or profuse, or septic, the tube must remain in longer than has been stated. As soon as the chest wound has healed, artificial respiration by Sylvester's method may be employed two or three times a day with great benefit, both in securing the expansion of the lung and in preventing any further reaccumulation of fluid. Subsequently, chest-expanding exercises should be employed and continued for weeks and months until the two sides of the chest are equal and symmetrical.

Can One Acquire Gonorrhea from a Person Who Has It Not?

Morel-Lavallée (*Annales des Maladies des Organes Génito-Urinaires*, December, 1893, p. 905) has an article with the above heading. He gives a case in which a husband, wife, and lover were involved, and submits the following conclusions:

Viewed clinically: (1) the morbific agent of gonorrhea may rest latent for months, or even years (in one of his observations six years). (2) The blennorrhagic virus may, in the woman, remain absolutely latent for three or four weeks and still preserve its full virulence. (3) The occurrence of the menses seemed to facilitate the outbreak of the affection.

Viewed socially: it is impossible to permit marriage in a man that has the slightest drop of discharge until it has been proved by the tests of Neisser (nitrate of silver), or bichloride of mercury, or beer (Janet), to be aseptic.

Viewed bacteriologically: (1) the gonococcus can be deposited in the genital tract and not develop, the patient escaping the disease entirely. (2) It may rest in the genital tract and still retain its virulence and capability of transmitting the disease. (3) The gonococcus may remain in the female urethra, at least for several days, without giving rise to any appreciable clinical signs. (4) Menstruation may light up a gonorrhea which would otherwise have remained latent. The author ends by answering the question with which he heads his article by quoting Ricord to the effect that "the most beautiful girl in the world can only give that which she has."

Pylorectomy with Gastro-Duodenostomy Posterior.

Kocher (*Correspondenzblatt für Schweiz. Aertzte*, 1893, Nos. 20, 21) gives his method of excising the pylorus. The incision is made in the median line, and is 10 to 15 centimetres long. The umbilicus is excised and all bleeding stopped. The tumor having been withdrawn as much as possible, small openings are made through the greater and lesser omentums, through these clamps are adjusted. The attachments of the omentum are then loosened from the growth and the latter enveloped in gauze. All bleeding is carefully stopped. A clamp, resembling an ordinary hemostatic forcep, is placed on the duodenum and an incision made between it and one applied on the stomach. He does not fear sloughing from pressure. The mucous coat which protrudes from the cut section is carefully cleansed with bichloride, 1–1000. The stomach is then compressed by the fingers of an assistant, and clamps placed next the growth; an incision being made between them, the growth is removed and the cut stomach cleansed and sutured shut with a continuous suture. This is then invaginated and another continuous Lembert suture placed above. The posterior wall of the duodenum is then approximated to the posterior wall of the stomach one-half or three quarters of a centimetre behind the closed end, and the two are sewed together with a continuous sero-serous suture. The forceps being removed from the duodenum, all bleeding is stopped and its interior carefully cleansed. An incision is then to be made into the posterior wall of the stomach and the free edge of the duodenum sewed to it by a suture, either embracing all the coats or else two layers applied, —one musculo-serous and the other mucous. The sero-serous layer of suture first applied is then continued all around. The cut end of the duodenum is thus fixed directly into an incision in the posterior wall of the stomach. Of six cases so operated on, one only died, and it on the twentieth day. Asepsis is insisted on, the lines of sutures being touched with gauze wet with sublimate solution. No washing of the abdominal cavity is to be employed. The continuous suture only is to be used. It is unnecessary to guard the forceps used to clamp the cut ends with rubber, because the pressure does no harm.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Iron Oxalate in Anemia.

Hayem (*Wiener medicinische Presse*, No. xxxv, 1894) has employed oxalate of iron for several years in the treatment of chlorosis, and prefers it to all inorganic preparations of the metal. He first administers during meals two pills, each containing 1½ grains; the dose subsequently being increased to 4½ to 6 grains, if the remedy is well borne.

Chlorine Water in Diphtheria.

Schubert (*Semaine Médicale*, xiv, 1894) speaks highly of chlorine water in diphtheria. He prescribes it as follows: Chlorine water, 2 parts; distilled water, 1 part. A teaspoonful every two or three hours. The solution has an acid taste, but is not unpleasant. In administering it to young children, the nostrils should be closed. In the act of swallowing, the chlorine penetrates every part of the nasopharynx. The treatment is well borne and the good effects are promptly manifested. The author also recommends its use by other members of the family as a prophylactic remedy.

Senecio Vulgaris as an Emmenagogue.

Murrell (*Semaine Médicale*, No. xiv, 1894) states that he has proved senecio vulgaris to be a valuable remedy in amenorrhea, especially when due to cold or occurring after confinement. He administers the tincture in doses of one to two fluidrachms three or four times daily, or the fluid extract in doses of twenty drops, three or four times daily. The drug does not disturb digestion or produce any other untoward effect. It has also been useful in increasing the menstrual flow when scanty, and in relieving dysmenorrhea and the headache attending menstruation.

The Therapeutic Action of Strontium Lactate.

Ried (*Wiener klinische Wochenschrift*, No. xvii, 1894) concludes his investigation of the therapeutic action of strontium lactate with the following observations:

(1) Strontium lactate lessens in many cases the albuminuria of Bright's disease. It has, however, no effect on the albuminuria of chronic interstitial nephritis.

(2) The manner in which it brings about this result is not known.

(3) Strontium lactate acts as a decided diuretic, but, like other drugs of the same class, it fails in individual cases.

(4) On account of its diuretic property, it is to be recommended in pleurisy with effusion as a temporary substitute for sodium salicylate, especially as the latter, through long usage, may exert a toxic effect, whereas the strontium salt can be used for weeks without producing any untoward results.

Ferratin.

Marfori (*Ann. di Chim. e di Farmacol*, February 1, 1894) has recently made a study of ferratin,—a substance resulting from the action of egg albumen on an iron salt in the presence of heat and an alkali. He concludes that it contains from 7 to 8 per cent. of iron, and that it is quite freely absorbed from the intestines. When injected directly into the blood, it appears in the urine and feces in minute quantities only. Inorganic salts of iron are chiefly excreted by the intestines. It is noteworthy that a substance closely resembling ferratin is found in considerable quantities in the liver of many animals. As it appears to be identical with hematogen, a substance separated from egg by Bunge, and shown by him to aid in the formation of hemoglobin, it ought to be a valuable blood-maker. Clinical experiment has demonstrated this to be a fact. It produces no disagreeable effects, and may be given in doses of fifteen to thirty grains daily, care being taken to avoid acid drinks.

Sodium Benzoate.

Liegos (*Deutsche medicinische Wochenschrift*, No. 10, 1894) calls attention again to the value of sodium benzoate in acute inflammations of the upper air-passages,—pharyngitis, laryngitis, and bronchitis. Under its use the symptoms subside in a few days. The daily dose for a child is 75 grains; for an adult, 150 to 225 grains. In diphtheria the drug proved useless.

It is also useful in the uric acid diathesis, since it changes the insoluble urates into hippuric acid, which is easily excreted. It is a valuable cholagogue, and as such may be prescribed as follows:

℞ Sodii benzoatis,
Sodii salicylatis,
Pulv. rhei radicis, ... āā ℥iss.
Pulv. nucis vom., ... ℥ss. M.
Ft. in pil., No. 20.
Sig.—One pill twice daily.

Treatment of Membranous Colitis.

Revilliod (*Lyon Médical*, December 24, 1893) has had good results in the treatment of membranous colitis by the use of copious injections containing bismuth. The injection he uses is as follows: Subnitrate of bismuth, 10 parts; salicylate of sodium, 10 parts; mucilage, 500 parts. The quantity prescribed is half a litre. The colon is first of all cleaned out with an enema containing castor-oil or ipecacuanha, followed, if necessary, by an injection of a solution of boric acid. When the bismuth injection is to be given, the patient is placed on his back with the buttocks a little raised, and is directed to retain the injection for twenty-four hours, if possible; if this cannot be done a smaller quantity must be used for the injection. As a rule, the bismuth is not to be seen in the first stools passed. It appears after a few days as earthy lumps, and the stool in which it is contains no mucous scraps. In some cases of several months' standing a single injection was sufficient to insure recovery, in others the injection had to be repeated after the bismuth had been expelled. Slight constipation is produced by the treatment, but no other inconvenience. The treatment was also successful in chronic dysentery, and in other conditions in which there was reason to suspect ulceration of the large intestine.

The Treatment of Inoperable Tumors with the Toxines of Erysipelas and the Bacillus Prodigiosus.

Coley (*American Journal of the Medical Sciences*, July, 1894) states that since December, 1892, he has treated 35 cases of inoperable malignant tumors with the toxic products of erysipelas and bacillus prodigiosus. Of these 35 cases, 24 were sarcoma, 8 carcinoma, 3 either sarcoma or carcinoma.

At present he uses a culture prepared as follows: Bacillus prodigiosus is grown in streptococcus broth, to which a very little cacao has been added, for four weeks or more, and then the broth is heated one hour to 58° C., the fluid is then used without filtration. The results from an attack of erysipelas are shown to be little, if any, superior to those obtained from the toxines. He concludes as follows: (1) The curative action of erysipelas upon malignant tumors is an established fact. (2) This action is much more powerful in sarcoma than in carcinoma. (3) This action is chiefly due to the toxines of the erysipelas streptococcus, which may be isolated and used with safety. (4) This action is greatly increased by the addition of the toxines of bacillus prodigiosus. (5) The toxines to be of value should come from virulent cultures and should be freshly prepared. (6) The results obtained from the use of toxines without danger are so nearly equal to those obtained from an attack of erysipelas that inoculation should rarely be resorted to.

Strychnine Nitrate in Alcoholism.

Breed (*Medical News*, April 7, 1894) draws the following conclusion from his experience with strychnine nitrate in alcoholism:

(1) That we have in this drug a remedy that actually, for a period as yet undetermined, removes the desire for alcoholic stimulation in the chronic inebriate, and *that without the least effort on his part.*

(2) A remedy that removes the distress and gnawing at the epigastrium, so common upon the withdrawal of alcohol.

(3) A remedy that tones up the nervous system, allays insomnia, the flighty and other bad feelings in the head, the mental disturbances, and the tremulous agitation and uncertainty of voluntary motions due to the withdrawal of stimulants.

(4) A remedy that brings back the appetite and general physical vigor of the body.

(5) A remedy that temporarily transforms a wholly demoralized creature into a man.

(6) A remedy that is of great value in acute attacks of alcoholism.

(7) Incidentally, a remedy that is an exceedingly good and safe heart-tonic.

(8) More than all, a remedy that exerts a moral influence upon the patient, giving him what he had before wholly lost,—to wit, hope, enthusiasm, self-confidence, and courage, when before was despondency, abandonment, and despair; a steady, straightforward gaze, and a bright, youthful expression of the eye, which replaces the shamefaced, sneaking, apologetic air of total depravity of the chronic inebriate.

(9) We have in the nitrate of strychnine not a remedy that will oblige a man to abstain from drink if he does not want to do so, and such subjects do not deserve one. From the results obtained by the gold cure, the silver-ash cure, the Keeley cure, etc., we may conclude that we have a remedy that is as efficient as any of these, and much safer; a remedy, moreover, that is not secret, and can be used by men who know the action of drugs and can use them with discretion and safety to the patient.

Lactophenin in Typhoid Fever.

v. Jaksch (*Centralblatt für Innere Medicin*, March 17, 1894) has employed lactophenin as an antipyretic and sedative in the treatment of eighteen cases of typhoid fever, and in thirty three other cases of febrile disease. Seven to fifteen grains were given in starch capsules, the dose being repeated, when necessary, until the total daily amount reached one drachm. Although the remedy was administered more than 1000 times, no disagreeable or deleterious effects were observed. After its use the urine always yielded the para-amidophenol reaction. As an antipyretic it possesses a great advantage in that the fall of temperature is gradual and lasts for hours. In only one case was the subsequent rise of temperature associated with a chill. As a sedative to the nervous symptom its action was remarkable; under no other treatment has von Jaksch observed such a pleasing effect. While he admits that chance may have played an important part in the results obtained, he unhesitatingly recommends it for further trial.

The Therapeutics of Infectious Processes of the Nervous System.

Dercum (*Boston Medical and Surgical Journal*, June 14, 1894) discussed the above subject before the American Neurological Association, recently held in Washington. The following is a summary of his remarks: With regard to tuberculosis of the nervous system, the use of Koch's lymph has been shown to be not only useless but dangerous. In the treatment of leprosy by the use of lymph, the failure appears to have been almost equally marked. After reviewing the literature of hydrophobia, he concludes that it is vain to deny the truth of Pasteur's experimental researches on animals, while the evidence as regards human beings in specific instances is strong and convincing. Of thirty-four cases of tetanus treated by antitoxines, twenty were successful, but in some of these cases other measures, such as amputation or early active treatment of the wound, were employed. There is no contraindication to the use of antitoxines, as it appears to be in no way injurious.

With regard to drugs, we meet with little that is encouraging. In leprosy much has been claimed for gurjon, oil of chaulmoogra. In chorea, which is probably infectious, Dr. H. C. Wood has advanced quinine as of considerable value. Antipyrin also has its advocates. Surgical procedures enable us occasionally to accomplish definite and often brilliant results.

In conclusion, the author offered a suggestion in regard to the treatment of tetanus. It has been observed that the tetanus bacillus, while growing in thymus infusion, did not develop spores, and that animals injected with such cultures were highly immune to the cultures of tetanus grown in other media. If thymus-juice possesses such remarkable properties, its administration by the mouth or beneath the skin in a case of tetanus could certainly do no harm, and might do good. If successful, it would prove far more valuable than the antitoxine, because so readily procured.

OBSTETRICS.

UNDER THE CHARGE OF

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ASSISTED BY

RICHARD C. NORRIS, M.D., AND FRANK W. TALLEY, M.D.

Septicemia of Puerperal Origin through Infection of the Finger.

Poncet (*Gazette des Hôpitaux*, No. LXVIII, 1893) speaks of a young physician who infected his finger in removing some pieces of placenta from the uterus of a woman suffering from puerperal fever. The point of infection did not designate itself by a local sore, and there was no evidence of lymphangeitis, but six hours after the operation the doctor was seized with most unbearable and ever increasing pain in the left axilla. The glands were extirpated and the wound cauterized with actual cautery, in spite of which septicemia developed. The doctor died five days later. The axillary glands were very little swollen; the violent pain must therefore be referred to the action of a local toxine upon the peripheral nerves. A pure culture of streptococci was obtained from the glands. The investigator believes that the patient, who was overworked and a diabetic, afforded particularly favorable conditions for the development of the bacteria.

Concerning the Etiology of Embolism of the Pulmonary Artery during Pregnancy, Labor, and the Puerperal State.

Sperling (*Zeitschrift für Geburtshilfe und Gynäkologie*, Bd. XXVII) has collected from the literature thirty-three cases of embolism of the pulmonary artery, occurring during labor or in the lying-in period. Twenty-six of these patients died. Sperling adds two cases observed by himself, from which one died and the other had a slow recovery. The origin of the emboli must in twenty-six of the thirty-five cases have been in the pelvic veins. Thrombosis of the pelvic veins is in itself secondary, in that either a thrombus extends from the placentar attachment or, in inflammatory processes of the uterus, there is a spreading of the inflammation over the course of the lymphatics on the walls of the veins, causing a coagulation inside the same.

A frequent but not imperative consequence of the thrombosis of the pelvic veins is the formation of clot inside the deep veins of the thigh with the consequent following symptoms of phlegmasia alba dolens of the corresponding extremity. If this secondary thrombosis does not take place in the deep veins of the thigh, the diagnosis of thrombosis of the pelvic veins may occasionally be made by the marked dilatation of the subcutaneous veins on the upper part of the thigh, as was noticed by Sperling in his cases.

The formation of thrombi in the course of the saphenous vein or dilatation thrombi in the varices of the leg, play an important *rôle* in the etiology of pulmonary emboli.

Phlegmasia alba dolens is to be regarded as the first symptom of a threatening embolus of the lung, and to be treated by elevation and rest of the affected leg. Massage is to be avoided. If embolism has occurred, ether and camphor subcutaneous injections are indicated to support the heart's action.

Concerning Air-Embolism in Placenta Previa.

Freudenberg, of Dresden (*Centralblatt für Gynäkologie*, No. xx, 1894). During the last six years three cases have been reported from the *Berliner Klinik* of sudden death in placenta previa through the entrance of air in the veins. In these cases it has been known that the cause of death was the above-named and not through chloroform or from other causes. The last case described by Henck, the patient was seized with a violent pain as soon as the foot was drawn out of the vulva; she strained projecting from the vulva a thick stream of blood-colored amniotic liquor. Freudenberg reasons that this manner of escape of the amniotic liquor is to be as far as possible prevented. The performance of version and the extraction of the foot is in no way rendered more difficult if the manipulation be carried out slowly and with care that the amniotic liquor is evacuated as evenly as possible. In this manner the uterus contracts regularly on the slowly-decreasing contents and the fundus sinks continually deeper while the external hand seeks, in the pause between the pains, to prevent, as far as possible, a relaxation of the uterine muscle and a rising of the uterus. The more amniotic liquor is present the more rigid must be our caution in the above manner to meet the possible danger. Also after the full extraction of the foot the operator or his assistant must control the uterus through energetic kneading, and prevent any relaxation of this organ, as in this alone lies the danger of air aspiration through the bared lumen of the veins.

Concerning Compression of the Ureters by the Gravid Uterus and Consecutive Pyonephrosis.

Bonneau (*Thèse de Paris*, 1893) considers the question, Can the compression of the ureters, so frequently occurring in pregnancy by the pregnant uterus, be considered a cause of eclampsia? Theoretically it seems that this view is very probable. In fact, however, the pressure is seldom so considerable as to produce this result. In the majority of the cases there is principally a pressure upon the right side; but this is seldom a perfect one, and the excretion through the kidneys is still sufficient to protect from eclampsia when the pressure is alone in consideration. With great probability it may be accepted that there is a *causa adjuvans* of the eclampsia which, in certain cases, occasions other changes in the kidney tissues.

The imperfect retention causes, after a short time, changes in the tissues of the kidney which are to be compared with those observed in animals after ligation of the ureters. A certain number of cases of albuminuria, which occurred in the course of pregnancy and the expulsive contraction, can be referred to these pathological changes. Several autopsies of women who had died in consequence of albuminuria in which these tissue-changes in the kidneys were credited in great part to the dilatation of the ureters, in which inflammatory tissue-changes very little or not at all were present, corroborate this hypothesis.

The most important result of the compression of the ureters is the development of pyonephrosis. It follows clearly the above observations that compression of the ureters by the gravid uterus places the kidneys and the upper urinary passages in a danger of infection and establishes a point of minor resistance. If, under these conditions, an infection passes through the blood-current, through the intestinal tract, or by other ways, and the microbes deposited through the blood in this location, they would occasion a descending nephritis, the pelvis of the

kidney would be seized, and the existing hydronephrosis would be converted into a pyonephrosis.

These pus-conditions, as consequent conditions to the pregnancy, manifest themselves through a conglomeration of symptoms which may be mistaken for those of cystitis; this may also, indeed, exist in certain cases. A careful examination will show that the kidney and its pelvis alone are affected and that the bladder is healthy.

The prognosis may be regarded as relatively favorable, as these pyelitis cases usually heal after labor. Nevertheless, one must consider that they may exist for a long time and occasion severe general symptoms, even require surgical measures.

GYNECOLOGY.

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D., AND CHARLES BINGHAM PENROSE, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D., AND H. D. BEYEA, M.D.

Uretero-Vaginal Fistula Following Vaginal Hysterectomy; Successful Reimplantation of Ureter into Bladder.

W. J. Mayo (*Medical Record*, February 10, 1894) reports a case of vaginal hysterectomy for carcinoma in which he was obliged to use the clamp on the right broad ligament. The patient was able to be around at the end of three weeks, but it was discovered that the right ureter had been injured and was severed in the infiltrated tissue about an inch from its cystic termination. The ureter was freed and a short channel lined with mucous membrane of the vagina was formed, connecting the ureter end with the bladder. Union of the channel to the ureter was perfect but failed at the bladder end, and the opening into the bladder promptly healed, leaving the fistula at a new point against its posterior wall. Three weeks later, a flap of vaginal mucous membrane was raised just below and behind the fistula, forming a collar to its lower lip. A curved incision was now made into the bladder, just above and in front of the fistula. A long piece of one-eighth-inch rubber tube was carried through the urethra, bladder, and out the cystotomy opening; its upper end was cut obliquely and several lateral openings were made along the upper three inches; this end of the tube was now passed up the channel previously formed about an inch and against the ureter end and secured in this position by a catgut suture. The denuded surfaces of vagina and bladder-wall were now united by sutures. The rubber tube carried the urine from the ureter and by its openings lower down also drained the bladder and prevented tenesmus, its external end passing into a bottle.

Boracic acid irrigations were practised daily and boric acid was taken also by the mouth to keep the urine acid. The tube was easily withdrawn on the eighth day by reason of the softening of the catgut sutures and it was not incrusted. The silk-worm sutures which united the posterior lower edge of the cut bladder-wall to the denuded surface below and behind the fistula, were removed in sixteen days. There was but slight vesical irritability after the first two weeks, and the patient was discharged in three weeks, with a vagina but little shortened from its normal length.

Urine Analysis in Gynecology.

Kelly (*American Journal of Obstetrics*) says that in gynecological practice the kidneys are more important than any organ outside the pelvis, for two reasons:

(1) If they are much diseased the patient would be likely not to survive an operation of importance.

(2) By gaining this information about the diseased condition of the kidneys the operator can stimulate other emunctories and hasten his work as much as possible.

The practical advantages to be derived from urinalysis are:

(1) That we may refuse to operate where there is advanced renal disease.

(2) By detecting disease when of moderate severity properly directed treatment may improve the condition sufficiently to allow of operation.

(3) Or we would be led to operate earlier in certain conditions which if allowed to go on would lead to grave kidney complications.

(4) We might feel that chloroform would be preferable to ether, although the author has not seen any ill effects from ether in these cases.

(5) Drainage would probably be employed as an extra emunctory.

The presence of albumin without casts is not significant, nor is the presence of a few hyaline and granular casts of much importance in the absence of vascular changes and other symptoms indicative of renal disease. Transient glycosuria is not important, but diabetes mellitus contra-indicates abdominal operations.

The quantity of urine secreted per diem is considerably diminished during the first two to four days after operation, in some cases amounting to only one-third the normal amount.

Out of about 800 cases of abdominal surgery at Johns Hopkins Hospital there have been autopsies in sixteen cases in which kidney disease was found, and six cases in which no operation was done comprised five cases of malignant disease with kidney disease.

Of these twenty-two cases, ten had carcinoma or sarcoma, thus showing a remarkable relationship between malignant disease and chronic nephritis. In seven cases death was due to peritonitis. One died of chronic diffuse nephritis. In one of the fatal cases there was an enormous cystomyoma, both kidneys atrophied and containing abscesses.

Thus in three cases out of 800 the operation was contra-indicated owing to the diseased state of the kidneys.

The Diagnosis of Pelvic Inflammatory Diseases.

Howard A. Kelly (*Annals of Gynecology and Pediatry*, January, 1894) states that 15.5 per cent. of the last 200 cases sent him for operation had no pelvic disease. He urges the importance of careful exploration through the vagina and bowel, and over the lower abdomen under anethesia. What the author terms the trimanual examination consists in the employment of a tenaculum, which is hooked into the anterior lips of the cervix for the purpose of pulling down the uterus with its appendages into the reach of the examining fingers. The tenaculum being flat and corrugated on the handle makes it easy for the vaginal hand to grasp and hold it firmly during the examination. If resistance is felt at any point, the traction must not be carried further until its cause is ascertained. Examination of the pelvis through the vagina and bowel can be much more thoroughly made by this maneuvre. In doubtful cases the ovaries may be detected by means of the utero-ovarian ligaments, always recognizable as prominent cords in the broad ligament

immediately below the cornua uteri. Upon running the finger out one of these cords, one-half to one inch, it comes in contact with an abrupt enlargement, which is always the ovary. If this is large, ill-defined in outline, and more or less fixed, the diagnosis of inflammatory disease may be made at once. In order to exclude inflammatory conditions the finger must be passed around the ovary, clearly outlining its border and surfaces as it is lifted on the palpitating finger. In this way the most delicate adhesions will be discovered. The conclusions may be stated as follows:

(1) The history of the patient, associated with pain in the ovarian regions produced by deep abdominal or vaginal palpitation, cannot *per se* establish a diagnosis of pelvic inflammatory disease.

(2) An attempt to make a diagnosis without directly palpitating the pelvic organs is at best but more or less clever guesswork.

(3) The diagnosis can be made with certainty when resisting masses are felt choking the posterior half of the pelvis at the sides and behind the uterus.

(4) It is possible in this way sometimes to mistake a retroflexed fundus, an extra-uterine pregnancy, or a myoma for inflammatory disease.

(5) For a more delicate appreciation of the exact condition of the pelvic organs, and in many cases in order to make any diagnosis at all, a trimanual examination by rectum and abdomen under anesthesia is necessary.

(6) The author's trimanual method of examination by rectum, vagina, and abdomen is the most accurate of all, serving to detect the slightest irregularities of the uterus and ovaries, as well as the most delicate adhesions.

The Operative Treatment of Vaginal, Uterine and Ovarian Displacement.

Smith Napier (*British Gynecological Journal*, August, 1893) discusses the relative merits of the different operative procedures for these conditions. For rectocele of slight degree, Tait's flap-splitting perineorrhaphy is quite satisfactory, but where it is more marked a calpo-perineorrhaphy after the method of Hegar, Martin or Doléris is to be preferred.

For cystocele, Stoltz's operation, or the author's modification, answers the indications better than any other procedures. Experience has proved that the operations of Sims and Emmet, or any of their modifications, do not stand the pressure of a prolapsed superincumbent uterus. The author's modification of Stoltz's operation is briefly as follows: A sound is introduced in the bladder; the anterior vaginal mucous surface is fixed with forceps; a superficial circular incision, varying with the size of the prolapsed surface, is marked out; a Hagedorn needle, bearing a stout silk thread, is introduced half an inch below the meatus, and slightly to its right side; the needle is carried round outside the marked line at incision, and the suture kept as much buried as possible; it finally emerges to the left side of the meatus. The foundation is then made, commencing usually at the margin nearest the meatus. The sound is withdrawn from the bladder; a clean sound presses the denuded part upward and inward; the circular ligature is pulled tight and firmly tied.

Operations for Uterine Displacements.—For anteflexions, dilatation to overcome the cervical stenosis, or amputating the cervix by anterior or posterior cervical flaps, are approved methods of treatment.

Retro-displacements are frequently associated with prolapsus of the uterus, and also of the uterine adnexa. These displacements may be classified as

reducible, resisting and adherent, either with or without prolapse of the appendages. Rectocele and cystocele often precede or follow the uterine displacement. Before deciding on any operation upon the uterus, it is important to see if there is any inflammatory condition of the uterus or of its appendages. If such conditions exist they should receive treatment prior to any effort to correct the displaced by operative measures. Curettage, douching, tampons and application may so much improve the state of the tissues that slight displacements will be corrected, or, at the least, the organs will be in much better condition to be operated upon, and the results will be more satisfactory as a consequence of this preparatory treatment. For mobile or slightly adherent retroflexions, the Alexander-Adams operation upon the sound ligaments is advised, but is most satisfactory for cases of uncomplicated retroversion. Other operations on the sound ligaments, as those of Wylie, Ruggi, Bode, Polk and Dudley, and the operations upon the broad and utero-sacral ligaments, are discussed, but are not specially favored by the author.

Operations in which the Sutures are Introduced per Vaginam.—The method of Schücking, and the modifications of that operation as practised by Zweiful and by Sänger, are described; but, on the whole, colpo-hysteropexy is said to be not so safe and satisfactory as gastro-hysteropexy or ventro-fixation of the uterus.

Abdominal Operations for Uterine Retro-displacements. — Ventro-fixation may be extra- or intra-peritoneal. The extra-peritoneal method is condemned without regard to the manner of introducing the sutures—whether they be brought through the vagina or through the abdominal parietes. The three cases of Kelly are mentioned, in which the extra-peritoneal abdomino-uterine method was practised in each case and twice in one of them, but each woman was subsequently operated upon by the intra-peritoneal method. The practical objections which pertain to these procedures are the possibility of adhesions, inflammation about the appendages, and injury to the bladder and intestines. Intra-peritoneal operations comprise two great classes: one is indirect, aiming at fixing the uterus through operation on the ligaments; the other direct, requiring direct uterine fixation. Of the latter class there are two varieties: (1) Lateral fixation; (2) direct median fixation. In lateral fixation the sutures are introduced on each side, away from the fundus uteri, but on a level with its lateral border. There is, in this operation, some danger of wounding the epigastric artery and Fallopian tube, also the anterior serous fold may be included in the ligature. The sutures cannot give a very good hold upon the uterus and the strain on the upper suture must be considerable. There is also an aperture left between the uterus and the abdominal wall which might permit subsequent intestinal strangulation. The operation of direct median fixation of the uterus is unquestionably the simplest and most secure method. The operations of Leopold, Czërny and Ferrier vary but little in detail. The author's operation, which closely resembles Ferrier's, is described as follows: (1) Opening the abdomen in the usual manner; (2) introducing two fingers, freeing any adhesions, either by fingers or fingers and sponge on holder; (3) supporting uterus with fingers or sponge, passing a suture (chromicised catgut, No. 3 or No. 2, or median silk) through the fundus uteri, entering the wall pretty deeply, and by means of this suture dragging the freed uterus upwards. Two other sutures of chromic catgut are now introduced through the deeper abdominal layer and the front of the uterus, one as low down on the corpus uteri as possible, the second midway between the upper and lower sutures, neither of these is tied till later. The sutures pass only through the edge of the rectus, but take a firm hold of the serous and fibrous structures. The divided

parietal peritoneum below the level of the lowest suture is united with the ordinary deep abdominal silkworm-gut suture. The abdominal sutures immediately in front of the uterus pass through skin and superficial fascia, and preferably take a slight hold of muscle layer. The upper uterine thread is now passed through each side of the abdominal wall from within outwards, embracing serous, fibrous and the edges of the muscular layers, and is tied; then the middle and next the lowest thread is secured. The peritoneum is carefully sponged. (4) The abdominal sutures are now tied; these should be closely placed and care taken in approaching the skin in order to get union by first intention. Strapping is applied with dry gauze dressings, pads and a many-tailed bandage. The author has had fourteen operations of this kind, thirteen of which have been highly satisfactory. Pregnancy has occurred in several cases thus treated, and its course has not been interrupted, nor has the malposition returned after the completion of pregnancy. Cures have been verified three years after the operation. The risks are not any greater than those of celiotomy. Ventro-fixation for the correction of uterine prolapse must be supplemented by some operation upon the vaginal walls, and possibly curettage or operation upon the cervix.

Operations for the Cure of Ovarian Prolapse.—Such procedures are applicable, of course, only to healthy prolapsed ovaries; the diseased ovary should be removed. By suturing the peritoneum of the ovary (meso-salpinx) to the abdominal wall in cases where there is no uterine descent, or by performing ventro-fixation of the uterus after freeing all adhesions about the ovary, the prolapsed organ is replaced to its normal position. In 235 operations for retro-displacement of the uterus, there was a marked prolapse of the ovary in thirteen cases; of these eight were found to be diseased and were removed. The author's opinion is that Kelly's second method of hysterorrhaphy, which is specially applied to shortening the utero-ovarian ligaments, might be, theoretically, the best procedure for simple prolapse of a healthy ovary.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

The Excretion of Pathogenic Micro-organisms through the Sweat.

Ludakow (*Wratsch*, 1893, No. 25; abstract in the *Centralblatt für Bakt. u. Parasitunk*, 1893, xiv, No. 25, p. 817) investigated the sweat, and at the same time the blood, of five cases of *local* tuberculosis, four cases of typhoid fever, and five cases of erysipelas. No tubercle bacilli were found either in the blood or sweat of the cases examined. In the typhoid cases, the typhoid bacilli were found once in both sweat and blood, once in the blood alone, once in the sweat alone, and once absent in both. The erysipelas cases showed the presence of the streptococci twice in both blood and sweat, once absent from both, once only in the blood, and once only in the sweat.

The Cellular Inclosures of Carcinoma.

Claessen (*Ziegler's Beitrage zur Pathologische Anatomie*, Bd. xiv, 1893 Heft 1) studied eight carcinomata and five sarcomata, and concludes that the cellular inclosures which are to be observed in most of these tumors can be traced back to two sources, first, leucocytes which are taken into the tumor cells; second, degeneration-products of the cells and nuclei. He thinks it an error to place these bodies among the parasites until more definite methods of study and a broader knowledge of them shall prove their independent nature.

Two Cases of Suppuration of the Bile-Ducts.

Barbacci (*Lo Sperimentale*, 1892, v) reports two cases. In the first, a case of cicatricial obstruction of the common duct, with purulent cholecystitis, he was able to demonstrate but one bacterium in the pus. Careful examination showed it to be the bacillus coli communis.

The second case was one of obstruction of the cystic duct, caused by the presence of a calculus. In this case he again found a single bacterium,—the staphylococcus pyogenes aureus. This organism was also found in an existing and probably secondary endocarditis.

New Researches upon the Etiology of Cancer.

Fiessinger (*Revue de Médecine*, xiii, August 10, 1893, No. 8) studied the topographical distribution of cancer, especially in its relation to water. His results may be summed up as follows:

(1) Cancer is irregularly distributed throughout the same area. It occurs chiefly in isolated houses in the vicinity of woods and streams.

(2) This peculiarity separates cancer from all known bacteridian diseases and places it in the group of the malarial affections,—*i.e.*, miasmatic diseases. Contrary to most diseases of this group, however, cancer occurs among high mountains, at an altitude of 1000 metres and over.

(3) Cancer is caused by an external agent which is confined to that part in which its irritant action is in progess.

Straining the Tubercle Bacillus in a Sublimate Solution of an Anilin Dye.

Nastinkow and Pewsner (*Wratsch*, 1893, No. 3; abstract in the *Centralblatt für Bakt. u. Parasitunk*, 1893, xiv, No. 13, p. 816) suggests the following method:

To ten cubic centimetres of a solution of anilin saturated and filtered oil in 1:2000 bichloride of mercury in water, one cubic centimetre of a ten-per-cent. solution of gentian violet, methyl violet, or fuchsin in absolute alcohol is added. The smeared cover is immersed for five minutes in the stain, washed in distilled water, and then entirely decolorized by washing in a dilute solution of hydrochloric acid. For the contrast stain, the specimen is placed for one to two minutes in a one-per-cent. solution of malachite green or eosin in 1:2000 bichloride solution.

The advantages of this method are that the cover-smear need not be passed through the flame to fix it to the glass,—a deleterious procedure,—and that no heating is necessary to aid the penetration of the stain. The method is rapid, and as the solution of hydrochloric acid used to decolorize can be weak, there is no danger of decolorizing the tubercle bacilli.

The Fluorescent Function of Microbes.

Gessard (*Annales de l'Institut Pasteur*, 1892, pp. 801–823) made a careful study of the pigments produced by the bacillus pyocyaneus. Upon white of egg this organism produces only the green fluorescent pigment; in solutions of pure peptone, only the blue pyocyanin. This blue color did not invariably occur, indeed, was not infrequently mixed with the green, this depending upon the composition of the peptone used.

Careful study of the action of various substances upon the chromogenesis of the organism led Gessard to conclude that the green fluorescent color produced by the bacillus pyocyaneus was only produced when a certain amount of the phosphoric acid salts was present in the culture medium used.

The Preparation of Microtome-Sections of Cultures of Living Bacteria without Hardening.

Winkler (*Fortschritte der Medizin*, Bd. xi, 1893, No. 22) gives the following method:

In the centre of a block of paraffin, melting at 42° C., cut to fit the clamp of the microtome, a hole is bored with the smallest size cork-borer. The paraffin block is allowed to lie in sublimate solution for an hour, then has liquid gelatin poured into the cylindrical cavity, where it is allowed to congeal.

The gelatin may be previously inoculated, or may be inoculated after hardening by the usual "stab," the latter being the better method. If anaërobic forms are to be cultivated, melted paraffin may be poured over the top.

When sufficiently grown for the purpose, the sections are cut under alcohol.

Winkler stains the sections with much diluted carbol-fuchsin which causes the bacteria to appear intensely red in contrast to the gelatin or agar-agar which colors but slightly.

The Inoculability of Carcinoma.

Geissler (*Archiv für klinische Chirurgie*, 1893, Bd. xlvi, No. 3), after giving a literary review of the experimental transplantations of cancer tisssue from animal to animal, from man to man, and from man to animals, describes his own experiments, which entirely differ from those of Adamkewicz, as follows:

From the centre and edges of perfectly fresh carcinoma tissues, care being taken to avoid ulcerated portions, small fragments were chosen for inoculation. An opening was made into the cranial cavity of a rabbit, between the orbit and ear, the dura opened and the carcinoma fragment introduced. The periosteal flap was replaced, and in four weeks the wound had entirely healed. Twenty-five animals were operated upon in this manner. Subsequently they were killed with chloroform, the entire cranium of the animal hardened in alcohol, decalcified, and cut in sections. The implanted tissues were not found to have liquefied as when introduced into serous cavities, but were changed into connective tissue. No proliferation of the carcinomatous elements could be observed, and none of the fragments were found to have increased in size. In no case was there any metastasis.

Geissler calls attention to the fact that perfectly fresh mammary carcinoma could be placed in the cranium, under perfect antiseptic precautions, with impunity, but, if allowed to stand over night, promptly caused the death of the animal when introduced. He attributes the results of Adamkewicz to lack of precautions in the choice of materials and in the operative technique.

MISCELLANEOUS.

TWENTY-FOURTH ANNUAL CONVENTION OF THE COLORADO STATE MEDICAL SOCIETY.

The Twenty-fourth Annual Convention of the State Medical Society of Colorado was held at Denver, June 19, 20, and 21; the attendance was unusually large; the papers and discussions were much better than for many years. A prominent feature of the Convention was the reception tendered by Drs. Rogers and Foster, and the banquet given by the Denver physicians, at the Brown Palace Hotel, to the visiting members.

Dr. Hubert Work, of Pueblo, Class '85, University of Pennsylvania, was unanimously elected president of the Society for the ensuing year,—a fitting honor to one of the best informed and most progressive physicians in Colorado. Dr. Work is the youngest man ever elected president of the Society.

ERRATUM.

In Dr. H. A. Tomlinson's article in the July issue of the Magazine, on page 670, fifth line, for *rational* read relational.

BOOK NOTICES.

An Outline of the Embryology of the Eye. By Ward A. Holden, A.M., M.D.

The modesty of the title and the fact that the Cartwright prize has been bestowed upon the work disarm all stringency of criticism. The worthy tribute that is paid to our esteemed confrères, Professor George A. Piersol and B. Alexander Randall, unconsciously attract us to welcome heartily an earnest effort to unravel the tangled threads of a complex problem in anatomical science. What we know is soon told. The work is short and free from all discussions in the realm of the unknowable. As faithfully as can be depicted with pen and pencil the little work strives to unfold the development of an organ which has shed so much light on the body general. The refinements in histology and the rapid progress in photography justify us in demanding that the camera shall henceforth be the impartial medium in communicating the revelations of the microscope to the scientific world. Otherwise we can only concur in the generally favorable impression which the work has produced.

A Practical Treatise on the Hair and Scalp. By George Thomas Jackson, M.D., Professor of Dermatology, Woman's Medical College, New York Infirmary; Chief of Clinic and Instructor in Dermatology, College of Physicians and Surgeons; Consulting Dermatologist, Presbyterian Hospital, etc. New, revised, and enlarged edition. New York: E. B. Treat, 1894.

In this new edition of Dr. Jackson's book, besides the revision and enlargement of the old articles, new sections have been added upon the subjects of *folliculitis de calvans*, *lipothrix*, and *aplasia pilorum propria*. New matter is especially noticeable in the articles on seborrhea of the scalp, alopecia areata, and trichophytosis, briefly giving the results of the researches in these diseases which have been so abundantly made since the appearance of the first edition in 1887.

In view of the epidemics which have been reported by reliable observers, the most recent and remarkable of which is the one reported by Putnam, the author is of the opinion that "it seems impossible to deny that the disease is contagious at times," an opinion with which we are in entire accord, if it is meant that there are two diseases included under this title, clinically resembling one another but etiologically distinct.

Reference is made to the extremely interesting and important researches of Sabourand concerning the nature of the trichophytose fungus, researches which have added materially to our knowledge of trichophytosis.

The bibliography, which is by no means the least valuable feature of the book, has been extended so as to include all publications up to the beginning of 1893.

The revisions and additions noted have materially added to the value of the book, which was already a meritorious contribution to dermatological literature.

Syphilis in the Innocent. (Syphilis Insonitum.) Clinically and Historically considered, with a plan for the legal control of the disease. By L. Duncan Bulkley, A.M., M.D., Physician to the New York Skin and Cancer Hospital, etc. New York: Bailey & Fairchild, 1894.

The basis of this work received from the College of Physicians of Philadelphia, in 1891, the award of the Alvarenga prize for the best memoir on any medical subject. The present work is somewhat more extended than the original essay, and is by all odds the best and most extended consideration of the subject in any language.

"Syphilis is not essentially a venereal disease," says the author in the introduction. Although most physicians will consider this a trite statement, it is undeniable that the fact is either far too little or not at all appreciated. The author records 116 original personal cases of extragenital chancres. A table has been compiled showing the location of over 9000 extragenital chancres. Another table includes

over 7000 cases of chancre, reported by various observers, which shows the relative proportion of extragenital to genital chancres. Still another table gives the epidemics of syphilis which have occurred from the year 1577 to the present time; this contains data relating to over 100 epidemics affecting over 3000 victims.

The author has classified syphilis insonitum into the following groups, according as it occurs: (1) in connection with household and industrial life; (2) in the care of children; (3) in professional pursuits. These include over 100 categories of transmission.

The chief value of this study is, of course, the fact that prophylaxis is better than cure. Individual safety, the author says, will result from a better and more wide-spread knowledge, on the part of the profession and the laity, of the manifestations of syphilis, its dangers, and the modes by which the disease has been transmitted. In regard to the legal control of syphilis the author advises the disease to be classified with other contagious diseases that are under the control of the boards of health. This certainly seems to be the best proposition yet made for restricting the spread of the disease. It is scarcely to be expected that, with the liberal form of government to which the people of this country have been accustomed, any system of sanitary inspection, such as prevails in certain European cities, could ever be legalized; besides, it promises infinitely less in its results than the system of control by health officers.

The subject is one which has a deep interest not alone for the specialist but for the physician as well, and, indeed, every individual of our entire population must be either directly or indirectly interested.

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UNIVERSITY OF PENNSYLVANIA PRESS,
716 Filbert Street, Philadelphia, Pa.

UNIVERSITY
MEDICAL MAGAZINE

SEPTEMBER, 1894.

THE MICROSCOPICAL ANATOMY OF THE CRYSTALLINE LENS.

By James Wallace, M.D.,

Assistant Ophthalmic Surgeon to the University Hospital.

The automatic function of accommodation, which is the principal part that the lens plays in the complicated process of vision, is so prompt in action, so independent of our volition, and so constant in its operation that few of us ever realize its existence. The ophthalmologist at the outset of his career has to contend with it, and finally to master it, before his most important instrument becomes a reliable auxiliary in his art. As the eye, by reason of the rigidity of its tissues, cannot alter its length to correspond with the varying distances of the objects which it regards, it must alter the power of its lenses to preserve the same distance of its posterior focus to the variable distances of its anterior focus. The theory of accommodation and its mechanism are portions of the great benefits which Helmholtz has conferred upon the scientific world. The verification of this mechanism has been supplied by Hensen and Volckers by proving indisputably the forward movement of the choroid. In considering the delicacy of movement necessary to sharply focus upon the retina the image formed by a system of lenses whose equivalent focus is 15 millimetres, whose integral parts are not always well centred, whose errors of refraction not infrequently include a considerable degree of astigmatism, and whose action is automatic, we are justified in asking whether there is not some common bond between retina, ciliary muscle, and crystalline lens, by which the amount of nerve force exerted is always proportioned to the degree of the error and within certain limits modified by its character. It is no unusual thing to find an astigmatism of from .5 to 1 dioptre obliterated by the accommodation. We might also add here

that the permanency of the accommodation for a fixed distance during several consecutive hours, without any sensible effort on our part, argues very strongly for a stimulus of some kind proceeding from the retina to the crystalline lens. An organ whose diameter measures 10 millimetres, whose function requires that it should be at all times brilliant and free from all turbidity, ought to possess at least trophic nerves, if trophic nerves are necessary for other organs.

These few preliminary remarks serve to introduce the essential feature of the present paper, which is an effort to demonstrate in the crystalline lens the presence of nerve fibres derived through the suspensory ligament from the fibre layer of the retina, and ultimately from the optic nerve A description of the illustration which accompanies the paper will recall the anatomy of the lens and show the physical grounds on which this statement is based. The photo micrograph of a human lens, magnified about 300 diameters, represents the anterior portion of the crystalline lens in the region of the attachment of its suspensory ligament. The capsule, epithelial cells, and fibres are the three elements that claim our attention, the strands of the suspensory ligament are feebly shown. The capsule contains two white cords, one bounding its inner surface and one nearly at its outer surface. The outer cord appears to cease at the insertion of the suspensory ligament, the inner cord, however, continues farther backward. From the inner cord may be seen fine fibres given off as the strands from any spun cord unravel. Some of these reunite again and proceed as lens fibres. The more posterior fibres—that is, those that start from near the equator —assume a concentric arrangement around the nucleus, but those that originate near the anterior insertion of the suspensory ligament are at first directed inward ; this results in the crowding of the fibres at one point ; from here the last-mentioned fibres bend rather sharply outward and terminate in a cord which runs just below the layer of epithelial cells parallel with this layer, and gives off branches which run up between the cells and join the inner cord of the capsule.

At the place where the fibres are crowded together the cells are numerous and undergo a scattering which resembles the flying particles in a whirlwind. They then take up an arrangement which corresponds with the concentric fibres of the inner portion of the lens. A close inspection of the cells shows nothing but a darkly-stained nucleus and the fibres which bound the four sides of the cell,—*i.e.*, above and below the common cord, between each cell a vertical offshoot. Immediately beneath the capsule the cells are almost square,—that is, the nuclei are round and the boundaries are nearly equal. Farther inward the nuclei become more elongated and lie between two of the fibres. A close inspection of the subcapsular cells with a convex lens shows that the

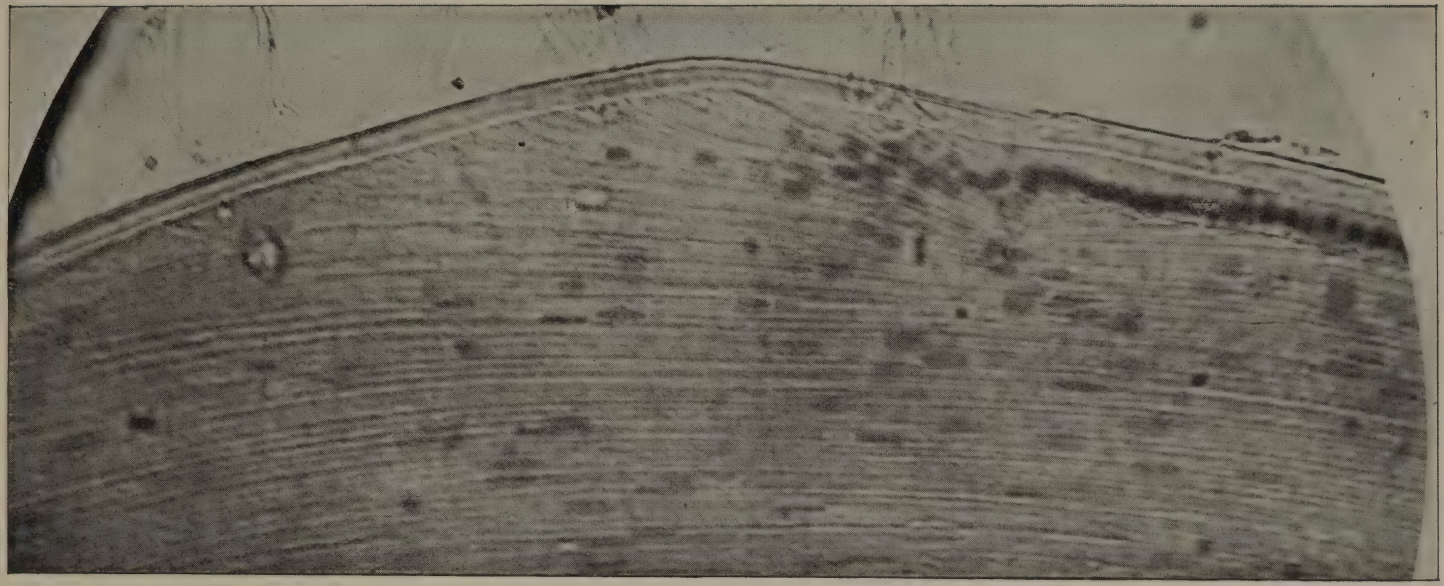

Photo-micrograph of anterior portion of human crystalline in the region of the attachment of the suspensory ligament, magnified about 300 times.

surrounding fibres have a figure-of-eight arrangement, suggesting that a movement in the fibres might cause a passage of the nucleus from one of these spaces to the next one. The same condition can be observed in the nuclei situated between the fibres nearer the centre of the lens. It appears as if these nuclei were propelled between the fibres by some motion of the fibres themselves. The figure-of-eight manner in which two of these fibres encircle a nucleus suggests a movement like that of the peristalsis of the alimentary tract. The cells seem to consist of a nucleus only. The structure of this nucleus only shows a granular appearance with some fine fibres crossing it, which proceed from the larger fibres contiguous to it. It is a matter of doubt whether these cells are organized structures proceeding to formation, or whether they are simply portions of nutrient material separated from the lymph by nerve action and propelled by nerve action to the interior of the lens, or wandering bodies similar to leucocytes which by their movement cause a current of lymph to flow after them through the interior of the organ. They do not give rise to the lens fibres as far as we can see. These fibres are bound together by numerous delicate fibres proceeding transversely from one large fibre to its adjacent fibre. The fibres present a twilled aspect similar to that of spun silk or linen. This appearance is common to the fibres of the retina and optic nerve. The cells of the corneal epithelium have, like those of the lens, a boundary of fibres which gives them the shape of cylinders, ovals, and attenuated ovals according to the mode in which the fibres bifurcate. These fibres have long been known as nerve fibres by their characteristic staining with gold. The cells of the liver show a similar arrangement, the nucleus being surrounded with a cord having the same twill as those already mentioned. In the gray matter of the spinal cord, the same spiral winding may be observed around the fibres which encircle the ganglion cells and decussate from one side to the other. It seems only just to infer from the identity of structure in these various fibres that we have here in the crystalline lens fibres from the nerve layer of the retina. We do not consider that any staining, such as that by methyl-blue, can be as satisfactory as the identity of structure between the fibres from the gray matter of the brain and cord and those of a tissue we wish to examine. No such attempt has been made, but in all fairness it is left open to those who consider its value in the distinction of nerve tissue paramount to any other test. Spiral windings around nerve fibres were first observed by Beale in 1863. Since then they have been repeatedly observed, and are well known to every histologist. In our opinion, staining is apt to obscure minute structures.

In the formation of new tissue we have to consider whether the first step in the process is the organization of plastic lymph or cells

into the elements of the tissue with a subsequent development of nerve fibres, or whether the first step is not the proliferation of nerve fibres into the lymph, and the organization of the lymph through the stimulus of trophic nerves into the specialized tissue. We incline to the latter view, and can see in this a satisfactory explanation not only of development and repair of our organs, but also of the new growths, whether of benign or malignant nature. In all the tumors we have examined microscopically, whether sarcomas, carcinomas, or epitheliomas, the cell in each case derived its shape from the nerve fibres which surrounded it; the form in which the nerve fibres separate depends upon the relation of the lateral expansion of the tumor to its forward progress. Equal expansion in both directions gives round cells, greater expansion in one direction than another gives spindle-shaped cells. In the embryology of the lens, the primary optic vesicle pushes outward until it reaches the external epiblast, then undergoes an involution to receive the thickened portion of the epiblast, which fills up this secondary optic vesicle, and forms the rudimentary lens. A connection is thus shown between the embryonic lens and the neural layer of the epiblast. The suspensory ligament of the lens is so delicate in structure that the name appears to us as a misnomer. The pop of a champagne cork on the outside of the eye is sufficient to cause its rupture. The lens is very well supported in the patellary fossa, its movement during accommodation is directly forward, so that the posterior surface, which is the more convex, is not disturbed in its resting place. It seems to us reasonable to suppose that the pulling forward of the choroid and relaxation of the suspensory ligament of the lens are only a gross adjustment of the focus by relaxing the fibres in the lens, and the fine adjustment of focus is produced by the arching forward of the fibres by the reflex stimulus from the retina. A point which may be pertinently raised here is, that if the lens contains nerve fibres from the retina, irritation of the lens ought to produce a luminous sensation. Touching cataractous lenses affords no evidence because the tissues are pathological. The only evidence that is accessible to us is furnished by the experiments of Purkinje and Czermak. When in a dark room the accommodation is suddenly relaxed, a bright circle appears at the periphery of the field of vision. An opportunity to touch a transparent lens with a blunt instrument has never occurred to us; we think it should produce a flash of light; however, as we could not avoid a certain amount of pressure on the whole ball, it would probably evoke the counter-argument of a sensation produced on the more posteriorly situated tissues.

A fact which tends to support our views is the rapid development of cataract after rupture of the zone of Zinn without any apparent

injury to the lens. We have also observed a striking similarity in the degeneration of the lens in some cataracts to the hyaline masses found in colloid degeneration of the retina, filling up the cyst-like cavities that occupy the region formerly represented by the granular and nuclear layers. The fibres of Müller have largely disappeared, some of them still remain in the form of pillars which connect with each other by arching fibres above and below. In these masses of hyaline substance the nerve fibres may be seen to fuse in such a peculiar manner as to leave no doubt in our minds that the masses are the remains of the degenerated fibres of Müller. These masses are perfectly homogeneous and free from structure, excepting where a nerve fibre is connected with them, and still retains its own characteristic form. Beneath the capsule of the lens we have observed a zone of the same homogeneous substance, entirely free from structure, while to the inside of this the fibrillar appearance of the lens tissue still remained.

We cannot discern in the fibres of the lens anything like a consolidation of elongated cells; on the contrary, the fibres appear to be unbroken cords running the entire length of the lens, and bearing the same twisted fibres around their stem that we have seen in all nerve tissue. These fibres are in many places extremely delicate, and it seems to us that we have not yet, even with our immersion lenses, isolated the primitive nerve fibril. Regarding the swelling of the lens and the development of myopia, frequently observed in the preliminary stages of cataract, we can have either the decay of the zone of Zinn, allowing the fibres of the lens to arch forward, or the degeneration of the fibres of the lens, causing a swelling of the substance with rupture of the zone of Zinn as a result.

According to Richter's organic chemistry, we have in the brain and nerves a substance resembling choline to which the name neurine has been given; it is very poisonous and decomposes into tri-methylamine, later into penta-methylenediamine, identical with cadaverin, tetra-methylaminediamine, identical with putrescin, then saprine, mydatoxine, and mydine. A decaying nerve should, according to this, be a dangerous element in an organ. A simple incision of the cornea, with or without iridectomy, produces comparatively slight reaction; extraction of the lens, however, increases very much the inflammatory reaction, especially if the cortical is not well cleaned out. Glaucomatous inflammation has been known to arise from slightly wounding the lens in a preliminary iridectomy. We think the reaction can be easily explained by the chemical poisons arising during the decay of the nerve tissue. Just as the excavation of the optic nerve in glaucoma denotes a metamorphosis of nerve fibres, and the scattering of their products of decomposition through the uveal tract, producing the inflammation of

the periphery of the iris and the closure of Schlemm's canal. In the same manner the production of an optic neuritis by a brain tumor in the cerebellum can be easily explained by the degenerated neurine travelling along the subarachnoidal spaces until it is stopped partly by the head of the optic nerve. We notice cataract as a concomitant of diabetes, a disease in which gangrene of any part of the body is easily produced by a slight injury. There are several reasons against the formation of the lens fibres by the union of the elongated epithelial cells. First, such fibres are formed according to the theory on the anterior aspect of the lens where the fibres are largest, they are supposed then to pass in towards the centre where the fibres are much shorter; these views do not agree. Again, if the fibres were being constantly renewed, we cannot conceive of the permanency of a zonular cataract, where healthy fibres exist to the inside and to the outside of the diseased ones. The relation of the nuclei to the fibres gives no support to the theory that the cell produces the fibre. In some places the nuclei seem to slide along the fibres like buttons on a wire; in other places the fibre rises up around the nucleus like the wave that runs along a rope that is shaken. More information on this subject may be obtained when our amplification reaches 1500 to 2000 diameters with the preservation of a sharp image.

THE ELIMINATION OF ETHER AND ITS RELATION TO THE KIDNEY.[1]

By George B. Wood, M.D.

It has been the teaching of the leading medical authorities of this country and abroad that the elimination of ether is accomplished by the kidneys and the lungs. I do not think, however, that it has ever been conclusively proved that the kidneys do excrete ether. Yet it seems, *a priori*, very probable that if ether exists in the blood in the free state the kidneys will attempt to rid the body of it. The existence of ether in the blood during anesthesia has never been doubted, but I have thought it would be worth while to positively determine whether this is so by the following experiments:

Experiment II.—Killed dog after thirty minutes' inhalation of ether. Blood was allowed to flow from the jugular vein through canula and rubber tube into a narrow-neck glass flask, which was

[1] Isaac Ott Prize Thesis, University of Pennsylvania, 1894.

tightly corked as soon as the blood was drawn. This blood smelt very strongly of ether, and was further tested in the following manner: NaOH was added to blood to keep it in solution while it was being distilled over a water-bath. The resulting distillate smelt of ether and gave a slight reaction to the following test: Put a few fibres of asbestos in a test-tube and add potassium chromate and sulphuric acid; the solution containing ether is now added, and a color varying from a yellowish-green to a true blue, according to the amount of ether present, is observed. I think this experiment proves conclusively the existence of free ether in the blood.

We now come to the more important point, that of the elimination of ether by the kidneys. The conclusive proof of this action would be the finding of ether in the urine, and it was with this end in view that I examined urine from patients who had been etherized.

Before giving the results of these examinations, I would like to call attention to the means of detecting ether in the urine. There are practically only two ways in which this can be accomplished: first, by the odor; second, by H_2SO_4 and $K_2C_rO_4$ test. The first is by far the simplest and most delicate.

I have proved by repeated trials by myself and by others that if one drop of ether be added to two or three ounces of urine and placed in an open beaker, its odor can be perceived twenty minutes afterwards. Of course, the odor by that time has become very slight, and if the urine be allowed to stand will disappear altogether. The other test is not nearly so good, and it can only be practised on the distillate of the urine, as the charring effects of the H_2SO_4 on the organic substances of the urine entirely cloud over any reaction which might take place. In distilling for ether the urine should be kept from 120° to 180° F., so as to avoid distilling too much water over into the receiver. The receiver should be surrounded with cracked ice, so as to increase the concentration of the ether vapor. The distillate is then tested for ether as in Experiment II.

In the following examinations I trusted entirely to the sense of smell for the detection of ether. The urine was from patients who had been etherized in the University Hospital. The urine was always the first voided after the etherization. Where a question-mark is placed in the "result" column, it means that it was impossible to determine whether a suspicious smell was that of ether or that of a urinous principle:

No.	Result. Distilled.	Length of Etherization.	Amount Passed.	Time after Etherization.
I	No odor.	1 hour.	. . . .	
II	"	30 min.	. . . .	
III	"	. . . . .	9 oz.	6 hours.
IV	"	. . . . .	. . . .	3 "
V	"	. . . . .	6 "	14 "
VI	"	. . . . .	8 "	6 "
VII	"	. . . . .	10 "	6 "
VIII	Odor of ether distinctly perceivable; disappeared on boiling; distillate smelt of ether.	15 min.	7 "	3 "
IX	No odor.	45 min.	10 "	9 "
X	"	30 min.	4 "	7 hrs. 30 min.
XI	"	30 min.	3 "	5 hrs. 30 min.
XII	"	. . . . .	4 "	6 hours.
XIII	?	. . . . .	6 "	5 "
XIV	?	. . . . .	3 "	3 "
XV	?	. . . . .	8 "	
XVI	?	1½ hrs.	6 "	

In Number 8, there was a possible source of error, viz.: the bottle in which the urine was put had once contained ether, and enough of it had possibly been left in to taint the urine.

The average amount of ether used in these experiments was about eight ounces. As one drop of ether may be detected in two or three ounces of urine, and as not in a single instance (with the exception of Number 8) was there positive odor of ether, it seems very certain that if ether escapes through the kidneys at all it must be only in the minutest quantity.

What, then, is the fate of ether? It differs very little in its chemical composition from alcohol, and it might seem as though there would be some relation between the two in regard to their elimination. Alcohol, as we know, is partly eliminated by the kidneys and partly by the lungs; and is partly destroyed in the system. Ether, as has been shown, is not excreted by the kidneys. The destruction of ether in the body cannot be so great as that of alcohol, because ether, which is the oxide of ethyl, is a much more stable compound than alcohol, the hydrate of ethyl. Yet I think ether may to some extent undergo decomposition. But for the chief elimination of ether we must look to the lungs, for the odor of ether is distinctly perceivable on a patient's breath many hours after the operation, and it seems most natural that the lung should give forth that which it has taken in.

If ether be not eliminated by the kidneys, why is it that clinically we find following anesthesia many cases showing renal irritation? The

suggestions of this question led me to make a series of experiments on the dog. In these experiments ether was always given by inhalation. Dr. Guitéras kindly went over the slides presented with this paper, and confirmed the statements hereafter made.

Experiment I.—3.12, started to administer ether.

3.20, nozzle of canula with a rubber tube attached was put into carotid.

3.40, clip was taken off artery, and dog bled between one and two pints, which was collected in a glass flask.

3.50, killed dog with chloroform; dog dead two minutes after chloroform was started.

This experiment was started with the intention of proving the existence of free ether in the blood. So far it was a failure, for, as afterwards discovered, the flask used was one in which petroleum ether had been kept. Post-mortem showed the cortex of the kidneys to be slightly congested, while medulla was of a normal color. Pieces from the cortex were hardened in a saturated solution of $HgCl_2$, with equal parts of alcohol and water. Having been left in this solution for twenty-four hours, they were washed in water and put through graduated alcohol up to absolute, and then embedded in colloidin. (This is the process of hardening used in all the experiments except where otherwise indicated.) Microscopical examination showed distinct cloudy swelling of the proximal convoluted tubules. The tufts and discharging tubules were not affected. The nuclei of convoluted tubules were generally well stained, only here and there refusing to take the stain.

There enters into this experiment the possibility that the bleeding and the chloroform inhalation caused the parenchymatous degeneration, but as they came so near the death of the animal, it hardly seems possible that sufficient time elapsed for this to have caused the change. But, to be sure, I made the following experiment with the sole purpose of determining whether ether was capable of causing cloudy swelling in the kidneys or not.

Experiment III.—12.05, ether inhalation commenced.

1.50, killed dog with ether.

The post-mortem showed the kidneys to be deeply congested. The congestion seemed to be limited to the cortex, the medullary substance being of an almost normal color. Microscopical examination: Blood-vessels were universally congested. This was true of the medulla as well as the cortex. The capillaries of the glomeruli were distended even to rupture in a couple of instances. The cloudy swelling in this case was very irregular, in some tubules being very well marked, while in others it was only slightly so.

The results of these two experiments are confirmed by all the rest

of the series, cloudy swelling existing in all to a greater or less extent. This appears to me to prove that it is possible with one inhalation to produce a change in the normal status of the kidney.

It might seem to some as though this cloudy appearance might only be a temporary activity of the kidney, due to the intense congestion, and not a true parenchymatous degeneration. It is difficult to say just where the granular appearance of an active cell leaves off and where the more opaque effect of cloudy swelling begins, but the following experiment shows that the change is something more than a mere temporary affair of a few hours, entirely dependent on the congestion.

Experiment XVI.—10.00 A.M., commenced ether.

11.15 A.M., stopped ether. (Dog recovered consciousness.)

5.30 P.M., killed dog by pitting.

The post-mortem showed the kidneys to be of a normal color, only the slightest apparent trace of congestion in the edge of the cortex next to the medullary substance. Microscopical examination: Distinct cloudy swelling, being no less marked than in some dogs killed immediately after etherization.

Though the congestion had for all practical purposes disappeared, this clouded state still continued. I think we must acknowledge that ether is the active agent which causes both the congestion and the parenchymatous degeneration.

Yet how can ether be irritative to the kidneys when it is not excreted by them? As ether exists in the blood, it must of necessity go into the smallest capillaries over the whole body, and it seems possible that its action could be made manifest even through the walls. We see that in several instances the liver-cells show a slight cloudy swelling (see Experiments V and XII), and it is highly probable that all the tissues of the body come more or less in contact with it, but would only show alteration in their structure in so far as they are irritated by it. The kidneys, being more sensitive to its influence than any other tissue, would consequently show more change. It is also possible that there is an attempt at the elimination of ether, but that it is so irritative to the cells that they are unable to excrete it.

It has occurred to me that if ether caused such a decided effect in so short a time, a more lengthy exposure would produce a yet more pronounced alteration, and for this purpose I made a couple of experiments.

Experiment V.—October 19, etherized for one hour.

October 20, etherized for one hour.

October 21, etherized for one hour.

October 23, etherized for seventeen minutes.

On October 23, killed the dog after seventeen minutes' etheriza-

tion. He seemed to have polyuria. The post-mortem showed kidneys to be deeply congested, the congestion extending to some extent down into the medullary substance. These kidneys showed the peculiar macroscopical appearance of cloudy swelling. Microscopic examination: The whole kidney showed more or less cloudy swelling, the straight tubules and glomeruli being affected as well as the convoluted tubules. Some parts of the convoluted tubules were greatly affected, while other portions were only slightly so. Evidence of some slight desquamation was seen in the granular matter which had collected in the lumen of the collecting tubules. Pieces of the liver were in this case saved, and on examination showed swollen cells and some cloudy swelling, but the nuclei generally were well stained.

Experiment XI.—November 6, etherized for one hour.

November 7, etherized for one hour.

November 8, etherized for one hour.

November 9, etherized for thirty minutes.

This dog had a weak heart, and when he died it stopped before the respiration did. The post-mortem showed a distinctly flabby heart. The kidneys were congested. Microscopic examination: Kidneys showed cloudy swelling well marked in convoluted tubules. It extended to the epithelium of the glomeruli, and also down into the straight tubules.

These repeated etherizations seemed rather to make more general the disturbance of the kidneys than to cause a more intense inflammation. Yet Experiment V shows a tendency towards desquamation, indicating that if the cloudy swelling were kept up day after day, the tubules would discharge diseased cells.

The summary of this whole matter is, that ether is a decided irritant to the kidneys, capable of causing a true parenchymatous degeneration of that organ, even when in a healthy state. The clinical application of this is very simple. If the kidney be a healthy one the action of ether on it does not amount to much; but if the kidney be at all diseased ether should be administered only with the greatest care, lest its irritative influence tend to greatly increase the disease processes.

When fully developed uremia exists it would be absurd to attempt etherization, for the centres of respiration, already carrying as heavy a load of uremic poison as they can, would give way completely when the extra strain of the depressing action of ether was felt. Of course, when the above circumstances exist, no one, after a moment's thought, would think of giving ether; but let us suppose a case to be in the earlier stages of kidney disease, when probably the uremic poison was just commencing to accumulate; under such circumstances would a surgeon be justified in administering ether in an operation

which was important enough to cause him to pass by the local effect of the drug?

This, of course, depends on how soon the respiratory centres begin to feel the influence of the uremic poison. With this thought in mind I made another series of experiments. The idea was to have two dogs, one with diseased kidneys, and the other with healthy kidneys, under such circumstances that they would both receive their proportionate share of ether. For this purpose I made a tank large enough to accommodate two dogs, with a partition in the middle to keep them separated. The top was made of glass so they could easily be observed. After the dogs were put in the tank, and the lid was fastened down with thumb-screws, ether was sprayed into the tank through a hole. It took from eight to ten minutes for the dogs to become unconscious. Generally there was considerable excitement, but sometimes they would lie down and quietly go to sleep. By means of this tank two dogs were in the same atmosphere of ether at the same time, and, consequently, getting their proportionate share of ether.

For the purpose of producing nephritis I employed the tincture of cantharides in doses varying from five drops to one drachm, three times a day, according as the dog showed irritation of the kidneys. The first dog I tried had albumin and granular tube casts in his urine when he had only received twenty-four drops. All the other dogs that I tried seemed to have kidneys made of leather, as far as cantharides was concerned, showing no signs of nephritis even when taking a drachm a day.

Unfortunately, I had not my tank ready when the first dog showed albumin in his urine, and both desiring to see the effects of ether on him, and supposing I could produce a like nephritis in another dog without any trouble, I gave him ether with the funnel, being in too big a hurry to wait. This was the following experiment.

Experiment IV.—This dog received in his food twenty-four drops of the tincture of cantharides between October 19 and 22. On October 23 I etherized the dog for thirty-five minutes. He had scarcely come under the influence of ether when his breathing ceased, but it started again after a few minutes of artificial respiration. The urine passed during the excitement stage was scanty, containing quite a large quantity of albumin and numerous tube-casts. On October 27 I etherized him again. At 10.35 commenced ether, and at 10.45 dog stopped breathing. Artificial respiration was of no avail. Urine again contained albumin and casts. The post mortem showed commencing congestion on outer border of cortex of kidneys. Microscopic examination: Kidneys, the epithelial cells of the glomeruli, were desquamating, and in some places the tufts had dropped out, leaving only the capsule.

Desquamation of the convoluted tubules was also noticed. There was cloudy swelling and some fatty degeneration. In one or two places karyokinetic figures were seen, and signs of cell-divisions frequently met with. The lung, liver, and spleen were normal.

The next experiment was on a supposed healthy dog, but post-mortem revealed kidney-disease secondary to bladder-disease.

Experiment X.—November 2, etherized for one hour.

November 3, etherized for fifteen minutes.

Death took place suddenly after a fresh quantity of ether had been put on the cone. The heart continued beating fully two minutes after respiration had ceased. This dog had an intense urethritis with a probable stricture, causing an enormously-distended bladder. Microscopic examination: Epithelial cells of the kidney were desquamated, but no signs of karyokinesis. It seemed as though the cells had been floated off. The nuclei took the stain perfectly well. Cloudy swelling extended all over the kidney. Congestion was intense, especially well marked at the periphery of the cortex. Some of the tufts were compressed and small.

These experiments show the effects of ether on the respiratory centres in cases of commencing nephritis, and I was in hopes of confirming these results by more exact experiments, but as I failed to produce another case of nephritis, and was not lucky enough to find one, no important facts were obtained. Nevertheless, I will briefly describe these later experiments, as they show some other important points.

Experiments VIII and XII.—Dog No. 8 received in his food between October 28 and November 13, five fluid drachms and ten drops of the tincture of cantharides. On November 13 he had retention of urine. On the same day this dog, with a healthy one, No. 12, was put into the tank. Ether was started, and in one hour and two minutes No. 8 stopped breathing; seven minutes later, one hour and nine minutes, No. 12 stopped breathing. The post-mortem showed No. 12 to have congestion of both liver and kidneys. Microscopic examination: No. 8, kidneys,—a very general cloudy swelling was seen, the cell-walls disappearing; the lumen of the tubules seemed to be filled with granular matter; the capsule surrounding the tufts was swollen and showed hyaline change, but no cell proliferation; in one or two tubules the granular matter took the form of casts, yet there was no desquamation or karyokinetic figures; the liver showed marked fatty degeneration; this showed well as it was hardened in Flemming's solution. No. 12, kidney,—intense congestion of the cortex was noticed, also hemorrhage into several of the glomeruli; there was moderate cloudy swelling, but the nuclei with a few exceptions took stain well; the cells of the liver seemed to have undergone slight parenchymatous degeneration, and the whole organ was entirely congested.

Experiments IX and XIII.—Dog No. 9 received in his food, between October 28 and November 5, five fluid drachms and twenty drops of the tincture of cantharides. On November 6, No. 9, with a healthy dog, No. 13, was placed in the tank. (At this time No. 9 showed retention of urine which was thought to contain a trace of albumin.) No. 9 died after seventeen minutes' inhalation; No. 13 dying in thirty-three minutes. The post-mortem showed the kidneys of No. 13 to be congested, while those of No. 9 were scarcely so at all. Microscopic examination: in No. 9 there was varying degrees of cloudy swelling without any evidences of inflammation; the cloudy swelling was certainly not more marked than it was in some of the cases which had not taken cantharides. In No. 13 there was varying degrees of cloudy swelling, often obscuring the outlines of the cells, but the nuclei were generally well preserved.

Experiments XIV and XVII.—No. 14 received with his food, between November 15 and 25, eleven fluid drachms and twenty drops of the tincture of cantharides. No. 14, with his partner, No. 17, was put into the tank on November 27. No. 14 died in twenty-seven minutes, and No. 17 in thirty minutes. The post-mortem showed the kidneys of No. 17 to be very much congested, while those of No. 14 were only very slightly so. Microscopic examination: No. 14 showed moderate swelling; No. 17 showed less cloudy swelling than its partner, the outlines of the cells being better preserved.

In both of the experiments, IV and X, death took place accidentally from failure of respiration, and in both cases there was more or less kidney-disease. These two experiments seem to back up very strongly my suggestion as regards the effect of ether on the respiratory centres in kidney-disease. Yet they do not prove anything, for they may only have been coincident, as every once in a while, in experimenting with dogs, one is apt to suddenly stop breathing and die; but it may be that these occasional deaths are due to a nephritis. Therefore it is my belief that in case of nephritis surgeons should give ether only with the greatest care, continually watching for any signs of failure of respiration. An important point is that ether should be given very gradually, and when during the anesthesia it is necessary to use more ether, the inhaler should not at once be put directly on the face but brought gradually closer, the anesthetizer carefully watching the patient's breathing.

It is well, before I end this paper, to give a brief summary to bring out the chief points and facts obtained.

First, as regards the relation of ether to the healthy kidney. It has been proved that ether exists as such in the free state in the blood, and yet coming as it must in close relation with the kidney, it is, con-

trary to previous opinions, not excreted by that organ to any appreciable amount. Nevertheless, it has been demonstrated that in ether anesthesia the kidney becomes congested, and on microscopical examination the cells show cloudy swelling. The cells of the convoluted tubules are primarily affected, the tufts and collecting tubules only evincing change when the anesthesia had been prolonged. Repeated administrations of ether, if kept up long enough, would probably cause desquamation of the epithelial cells.

Second, as regards the diseased kidney. The local effect of ether must be very deleterious to an already diseased kidney, for any unhealthy organ will not stand wear and tear like a normal one. In cases where uremic poisoning was commencing to make itself apparent, it was shown that there existed a liability to sudden death during ether narcosis, due to the action of ether on the already depressed centres of respiration.

OBSERVATIONS ON CASES OF MOVABLE KIDNEY.[1]

By H. G. Wetherell, M.D.,

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Movable kidney is now known to exist, and to be a cause of symptoms much oftener than we formerly knew or believed, and it is not strange that the gynecologists should frequently encounter it.

The symptoms simulate so nearly some of the reflex and transmitted complaints associated with genital diseases in woman that, in the absence of lesions or evidence of disease about the uterus and ovaries, the kidneys would naturally be suspected as a cause. Then, too, the trained tactile sense of the gynecologist should recognize the minor degrees of mobility of the kidneys, and he is often placed in a position where the abdominal viscera can or must be palpated.

In all doubtful cases, perhaps in all cases where the bimanual pelvic examination is made, the kidneys should be also palpated, and their position determined.

The ease with which this examination can be made varies widely, in my opinion, with the individual. Many patients present no difficulty in the diagnosis; the kidney can be brought between the opposing hands (one in the flank and one in front) and carried about to the full extent of its tether. Perhaps this is true of most of the cases, but

[1] Read at the meeting of the New Jersey State Medical Society, June 27, 1894.

a very fat abdominal wall and, above all, a large, well-developed, and rigid set of muscles obscure the conditions. These, however, are the patients least likely to movable kidney, for there seems to be no doubt that a considerable reduction of the kidney fat is necessary to the condition, unless the kidney is a true floating kidney, and has a pronounced meso-nephron, for the kidney fat will not be absorbed to any great degree till marked absorption has taken place in the fat of the abdominal wall.

The symptoms most often met with are epigastric pain, digestive disturbances, general nervousness, palpitation of the heart, and a feeling of fulness, and a weight above the navel. That these symptoms are produced by tension upon the filaments of the great sympathetic centre (the solar plexus), as is claimed by Dr. George M. Edebohls,[1] seems reasonable, and all the more probable, as like symptoms may be set up by other conditions which are known to exercise an influence through the sympathetic system.

Movable kidney may exist without symptoms of any kind, and a freely floating kidney may not give the least inconvenience. In fact, it has been the experience of those who have seen most of these cases, that those kidneys having only a moderate degree of mobility may produce the greatest discomfort, and yet it is certainly true that a moderate degree of mobility is often physiological. It would seem quite difficult to decide, then, in just which cases symptoms were due to movable kidney, and that it must often be done through a process of reasoning by exclusion.

Just what means are best suited to the correction of the defect when found is not quite settled, but it is proper and fair to try corset, bands, and belts, if the patient can and will submit to the delay ; and just here, I must emphasize the importance of such regimen and remedies as will restore a better physical condition, increase the weight, and indirectly the cushion of fat in the fatty capsule of the kidney. Rest in bed and forced feeding, with massage and electricity, according to the rest-cure plan of Dr. S. Weir Mitchell, should be of great benefit, and when possible should be tried.

Nephrectomy (removal) is not now to be considered when nephrorrhaphy is so safe and sure a remedy as it appears to be.

The possibility of an anomalous condition in which but one kidney is present is always to be considered where a nephrectomy is contemplated, and as I saw this anomaly in the autopsy of a man who was murdered a few years ago, I know it to be a real and not altogether fanciful contingency. He had one large right kidney, and not

[1] American Journal of the Medical Sciences, March and April, 1893.

a rudiment of one on the left side. The position of the kidney back of the peritoneum makes it safe and easy of access, and the entire safety of passing sutures through its substance has been repeatedly demonstrated.

Dr. Edebohls has in a number of instances fastened both kidneys at one sitting with no bad after-effects.

The operation of simply cutting down on the kidney and passing a number of sutures through it has not proved entirely satisfactory, as the organs so anchored have broken away and the result has not been permanent.

The technique of the operation, as suggested by Dr. Edebohls, seems more likely to give permanent good results, and his reported cases show no failures as yet to fix the kidney.

He makes the usual incision down to the kidney, loosens its attachments to its fatty capsule, brings it up into the wound, splits its capsule proper, and passes through it and its capsule four to six sutures, which are passed through the muscles and fascia at the sides of the wound, and buried; the integument being closed over them by superficial sutures.

He uses silkworm gut for the kidney sutures, which is surely better than silk or catgut for this purpose, but which seems to me to be too small, and likely to cut out of the friable kidney substance to be an ideal material for the purpose.

Silk, in my opinion, is altogether unfit for this buried suture, and must occasionally lead to subsequent trouble. The first case cited below was operated by the old plan, and silk sutures used. After the operation the surgeon said "he had little confidence in nephrorrhaphy," and related a case he had done by a similar method, which subsequently came to a nephrectomy, for a hydronephrosis. Now this man is one of the cleanest, neatest, and best operators in Philadelphia, but I am satisfied his silk must have caused the mischief, and had he used silkworm gut or silver wire, that patient would not have lost his kidney. Silk will by its capillary action carry infection to its whole tract, while if a little spot on silkworm gut is soiled it is localized, and disposed of without making an abscess.

The experience of celiotomists with stitch-hole abscesses after the use of silk and silkworm gut is sufficient to clearly demonstrate the dangers of silk for this operation. It should not be buried in an organ which may be destroyed if by any means the silk becomes infected.

The best incision to make is, I believe, one that runs nearly or quite parallel to the last rib; it gives a better exposure than the straighter and more perpendicular one, and much more room in which to work.

The facility with which this operation may be done is greatly

increased by the position of the patient, and by that of the cushion which is placed under the patient to hold the kidney up to its position.

Having once used the prone position and the air cushion, as suggested by Dr. Edebohls, it is easy to appreciate their great advantages. Time is saved, and it is easy to lift the kidney well out of the wound, examine it thoroughly, and incise its capsula propria with the greatest precision.

I had made for me at the factory of a firm in Trenton one of the cushions (which I show you). It is eight inches in diameter and fourteen inches long, and inflated through the tube at the end, which then may be tied in a knot and the air retained. The adaptability of this pneumatic pressure to the viscera holds everything firmly and evenly in place, and gives rise to no pain or disturbance in respiration. The cushion is not easily displaced and is a great improvement over the feather pillow tied up in a roll.

With brief reference to two very interesting cases which I have seen in the last six weeks, this paper will close.

They presented widely varying conditions: the first case being a *man* with *limited* mobility of the *left* kidney, *rigid* and *muscular abdominal* walls, obscure and doubtful symptoms, making a case very difficult of exact diagnosis. He was operated on by the old method and buried silk sutures were used. The second case was a *woman* with *freely movable right kidney*, *thin* and *flaccid muscles*, *clear* and *well-defined kidney symptoms*, making the diagnosis *very easy*. She was operated upon by the new method.

Case I.—Married man, aged 36 years; clerk by occupation; in good health till about a year ago; then went into the retail shoe business. He lost flesh and weight about this time; became very nervous with dyspeptic symptoms, and had a more or less constant feeling of weight and dragging pain in the left hypochondrium and the epigastrium, cardiac palpitation, etc. Examination resulted in the discovery of a varicocele on the left side, with both testicles pendulous, and the suspicion that the left kidney was movable; the left side was firmly strapped with long ribbons of adhesive plasters and a suspensory bandage put on. After a fair trial of this plan, together with supporting treatment with no relief, he went by the advice of a friend to an excellent consultant, for whose opinion I have great respect, and the diagnosis of movable left kidney was made, and operation advised.

The operation was done May 15, in the lateral position, the kidney easily found and anchored by three silk sutures passed through and through and buried, without drainage of any kind and without reflecting the capsula propria. Time of operating thirty minutes.

There seems to be little doubt that this man's occupation was responsible, in part, at least, for his malady, as he was in good health till the loss of weight, and secondarily of fat in the fatty capsule made mobility possible and his new work in a stooping position (fitting shoes) served to dislodge the organ.

CASE II.—Married woman, aged 33 years. One child 4 years old. Abortion two years ago, followed by metrorrhagia and pain in left side over ovary and under the costal cartilages. Very nervous. Could not lie on left side. Constipated and a feeling as if "stomach was falling down in body." Monthly flow irregular but free, and has much yellowish discharge at all times.

Examination.—Uterus slightly enlarged, normal position; cervix slightly lacerated bilaterally and very much eroded. Canal bleeds on passing sound and emits a thick muco-purulent discharge (endometritis). Ovaries and tubes normal, so far as manual palpation can make out.

Left kidney in position and all other abdominal viscera normal, except the right kidney. The right kidney was easily made out to be freely movable. The abdomen being scaphoid and the walls thin and relaxed.

It could be carried up under the ribs beyond the reach of the finger-tips, and when brought down by deep inspiration and the perpendicular position could be grasped between the opposing hands and carried beyond the median line in front and then well down into the pelvis, so that its upper edge was opposite the anterior superior spinous process of the ilium. I estimated the radius of its excursions as fully five inches. It seemed normal in size, shape, and consistency, all of which could be made out.

Curettement for the endometritis and nephrorrhaphy for the right kidney were advised and accepted.

Operation.—Monday, May 21. Both operations were done at one sitting, the nephrorrhaphy first. Patient was etherized and placed at full length, prone on the table. The site of the operation as well as the patient had been carefully prepared. The air-pillow was accurately placed so as to press the kidney up into its position, and incision was made nearly parallel to the last rib with a small cross-cut upward. The muscles were divided the whole length of the skin-incision down to the kidney-fat, which was picked up and worked through to the kidney, which presented in the wound. Introducing the finger the loose attachments to the fatty capsule were broken and the kidney lifted out of the wound and well outside of the patient's body as its pedicle, vessels, and nerves, were very long and this could be easily done, facilitated as the operation was by the position of the patient and the air-cushion beneath her. The capsula propria was divided for about

three and a half inches along the back of the kidney, which was held in the left hand; it was turned back one-third of an inch on each side to leave a broad raw surface for firm adhesion to adjacent tissues, and six silkworm-gut sutures passed through the reflected capsule on each side and the kidney substance near its posterior margin. These six sutures were passed through the muscles and fascia at the sides of the wound, and after a drain of a few strands of the silkworm-gut were laid down on the surface of the kidney, the air-cushion was removed to relieve all tension, and they were firmly tied. Then the integument was brought over with interrupted catgut sutures and the wound dressed as usual. The uterus was quickly curetted and packed with iodoform gauze, and she was put to bed. Of course, strict antisepsis was observed throughout.

The patient did remarkably well. Temperature 100$\frac{2}{5}$° F. next day, but never again over 99$\frac{2}{3}$° F. Wound dressed on eighth day and found dry and united. Catgut sutures absorbed. The drainage strands were removed and it was redressed. She sat up in bed on the tenth day, and in a chair on the fourteenth, and was given permission to go home in four weeks.

For the first week after operation she had albumin and uric acid in her urine in abundance, but no blood or casts. These gradually disappeared, however; still it is a question to be settled later, whether these buried kidney stitches, even of so unirritating material as silkworm-gut, do not act as an irritant. This kidney is still firmly fixed, the patient is free from pain and in better health than she has been for years. She has gained in weight, has good color, and can walk or stand comfortably.

Vaginal Injections after Labor.

Eberhart maintains that injections are always needed after delivery when there is gonorrhea, when there is any other profuse discharge, when the vaginal mucus is fetid, when the temperature rises, and when any obstetric operation has been performed. Otherwise the injections are not needed in normal labors in private practice. In hospitals they must always be used. Eberhart has seen the best results follow preliminary vaginal douches, after Kaltenbach's practice. He uses them in private as well as in hospital. He has discarded sublimate, and employs a 1-per-cent. lysol solution. For intrauterine injections lysol should always be employed.—*Centralbl. f. Gynäk.*

IS THE TUBERCLE BACILLUS KILLED BY BOILING?

By Joseph McFarland, M.D.,
Lecturer on Bacteriology in the University of Pennsylvania.

In August, 1893, an article, by Marpmann, of Leipzig, entitled "The Investigation of Street Dust for Tubercle Bacilli,"[1] appeared, reporting certain observations so different from our ordinary ideas of the vitality of the tubercle bacillus that I determined to repeat the experiments and observe the results.

It is a fact of every-day observation that in sputum the tubercle bacilli do not always appear as homogeneous rods which stain evenly, but more often appear as irregularly nodular bacilli, as if the continuity of their protoplasm was frequently interrupted by an encircling incision. So exaggerated and regular may this appearance become that not infrequently the tubercle bacilli are mistaken by inexperienced observers for streptococci. It also happens that these fragments become detached and appear as irregular-sized cocci, staining as tubercle bacilli do.

Marpmann, Mei, and Keller made a careful study of this process and its daily progress, and tell us that in sputum the healthy bacilli become more or less like a string of beads in a couple of days; that in four or five days they have their protoplasm divided into several rounded masses, and that after two or three more days these bead-like bodies are only attached to each other by delicate tails of protoplasm. According to these observers in three to four weeks no more bacilli are to be observed in the sputum, while these isolated fragments from which all remains of bacillary membrane, etc., have disappeared are very common.

My observations of these changes are not in keeping with the above. It is part of my duty to instruct the medical students of the University of Pennsylvania in the technique of staining the tubercle bacillus. Beginners in staining require sputum containing large numbers of bacilli, and as such specimens cannot be obtained at the laboratory on a moment's notice, it often happens that a good specimen rich in bacilli will remain on hand for months at a time, being subjected to frequent examinations by the various sections of the class as they come for instruction. Such specimens are found to contain perfect bacilli as long as six months. Indeed, I am not prepared to say that the degenerated or involution forms are more numerous in old than in fresh sputum.

Several times the number of healthy-looking bacilli in old sputum has been so great that, without having been able to prove it, I have become convinced of the accuracy of Nuttall's observations that under

[1] Centralblatt für Bakteriologie und Parasitenkunde.

favorable conditions the tubercle bacilli increase in the sputum after its discharge from the lungs. This idea is not exactly conformable to the idea of the purely parasitic nature of the organism as proved by cultivation experiments, yet does not disprove it, for the conditions under which the organism exists in the sputum are not so very different from those in which many of the bacilli are found in the lungs, excepting the lower temperature.

Many bacteriologists have regarded the fragments of bacilli to which we have referred as spores. Rather than confirming this opinion, their methods of reacting towards stains, temperature, etc., point in the opposite direction. The ordinary methods of staining spores do not stain these bodies, or do so in such a manner as to lessen their spore-like appearance. They are never enclosed in a bacillary membrane, but always are irregularly-shaped, loosely, and irregularly-connected fragments.

Sternberg and Yersin tested the reaction of these fragments to heat, and both found the vitality of both the bacilli and their supposed spores ceased when they had been exposed for more than ten minutes to a temperature of more than 60° C. I have never made a special study of this thermic reaction, but lost a number of cultures through an accident to the gas regulator which allowed the temperature of my thermostat to remain at 50° C. for 48 hours. Although careful transplantations were made at once, no bacilli transplanted from the overheated cultures could be made to grow.

Sternberg points out that the thermic test is no proof that the bodies are not spores, for it is very possible that all spores do not have the same heat resisting capacity, and that while anthrax spores are capable of successfully resisting 100° C., it must not be inferred that the spores of tubercle bacilli must do the same.

Other observers, prominent among whom is Watson Cheyne, regard the open spaces between the bead-like remnants of the bacilli as the spores, and describe them as spherical or oval bodies which lie within the protoplasm of the bacilli. Fränkel, however, points out that they are not sharply circumscribed bodies, but have ragged borders, and are as often biconcave as biconvex in shape,—a peculiarity not shared by other spores.

My own observations have never shown anything of a spore-like character within or without the tubercle bacillus.

Marpmann does not commit himself in regard to the spore-like nature of the bacillary fragments, and, without declaring them to be true spores, does declare them to be permanent forms assumed by the bacillus for its further propagation.

Having found these "dauer-formen" in sputum which no longer

showed any perfect bacilli, he concluded that the failure of different observers to find tubercle bacilli in dust might be owing to the presence of the micro-organism in the fragmentary rather than the perfect form, and the consequent ease with which it is overlooked under such circumstances.

Marpmann's investigations upon the dust were conducted as follows: Dust was collected from the sidewalk, the curbstone, and the street of several avenues, mixed with water, allowed to digest for a couple of hours, then expressed through a woollen cloth. To the filtrate, about fifty centimetres in quantity, a drop of ferric chloride and about ten drops of ammonium carbonate solution were added, well mixed, and stood away for twenty-four hours in a pointed glass, or revolved in a centrifugal apparatus, in order that the precipitate of oxide of iron and earthy carbonates might be separated. The collected precipitate was spread upon a cover-glass, stained with carbol-fuchsin, decolorized with HCl alcohol, and examined in xylol. The use of the aniline oil colors (anilinfett farben) is recommended.

By this method the bacillary remnants were detected brilliantly stained in almost every specimen of dust examined.

Satisfied that he had discovered the remnants of tubercle bacilli, it still remained for Marpmann to prove that these remnants possessed vitality. To do this he makes use of the observations of Vissmann that when pure cultures of tubercle bacilli are boiled for five minutes and on the succeeding day are subjected to a temperature of streaming steam for two and a half hours, they are not killed, but when introduced into animals are capable of producing typical tubercles, which, "at least in the beginning," contain tubercle bacilli.

The following cultivation method was employed: "Pure cultures of tubercle bacilli and meat solution were sterilized by streaming steam for an hour, after which stroke cultures upon the surface of agar-agar were made from the boiled mixture, and placed in the thermostat at 37°–38° C. Ten tubes remained sterile after four weeks had passed. In a new series of experiments tubes inoculated in the same manner were filled with pure gases, sealed, and then placed in the thermostat. While the tubes filled with hydrogen, marsh gas, carbonic acid, nitrogen, nitrous oxide, and ozonized air still remained sterile, the tubes filled with pure oxygen in the course of four or five weeks showed a very delicate gray coating representing the position of the inoculated liquid. Microscopical examination proved this to consist of tubercle bacilli." Having achieved this with pure cultures of the organism, Marpmann had no difficulty in accomplishing the same result with sputum, earth, dust, etc. The high temperature to which the preparations were subjected destroyed the spores of most of the organisms present. Those

of the anaerobic organisms, which are most resistant to heat, of course, did not develop in the atmosphere of pure oxygen.

The extraordinary vitality which these experiments would assign to the remnants of tubercle bacilli and their great hygienic and clinical interest led me to repeat them in the following manner: A specimen of sputum which had been on hand for six months was selected. Careful microscopic examination showed the presence of multitudes of isolated bacillary segments (Marpmann's "dauer-formen"), of large numbers of segmented but still united bacilli, and many perfectly healthy-looking bacilli. About five centimetres of this material was poured into a test-tube, plugged with cotton, and steamed in the Koch's apparatus for fifteen minutes. As soon as the material had cooled, ten fresh glycerin agar tubes were inoculated. The material was now replaced in the steam apparatus, steamed for fifteen minutes more, removed, cooled, and ten more tubes inoculated. The material was now placed in the steam-apparatus a third time, steamed for thirty minutes, and then ten more tubes inoculated. This gave rise to three series of tubes, ten from material steamed for fifteen minutes, ten from material steamed for thirty minutes, and ten from material steamed for sixty minutes. Each tube was inoculated with three "ösenful" of the material, which was carefully spread in an exceedingly thin layer over the entire surface of the culture medium.

Microscopic examination of the inoculated material after its three steamings showed the presence of tubercle bacilli not in any way differing in their appearance or staining reaction from the original sample, except that to secure the same intensity with carbol-fuchsin, the boiled bacilli required a slightly longer exposure to a somewhat higher temperature than the unboiled.

After the tubes were inoculated, the cotton plugs were burned, then pushed into the tubes so as to give place for a perforated cork containing a glass tube. The corks were tightly inserted and covered with paraffine to make them as nearly air-tight as possible. One by one the tubes were connected with an exhaust and pressure apparatus by which the air was carefully pumped out and replaced by pure oxygen obtained from a reliable firm of this city. In order that the atmosphere might be one of pure oxygen, the exhaustion and replacement were done three times for each tube. When full of oxygen, the upper end of the tube was closed before its removal from the apparatus. All of the tubes were now placed in a thermostat, whose temperature was kept at 40° C.

As the days passed on, the tubes were subjected to frequent careful examinations in order to determine whether the tubercle bacilli grew or not. By the end of the second week about one-third of the tubes

were so contaminated with moulds that they were thrown away. These moulds were no doubt forced through the cotton plugs by the in-going stream of oxygen during the process of atmospheric replacement. At the end of the third week, no delicate film, such as Marpmann describes, could be discovered, but several more tubes were rejected on account of the moulds. By the end of the fourth week the pressure of the oxygen within the tubes having caused some of the corks to pop out, and the sealing of some of the tubes having given way, some more tubes—perfectly sterile, however—were rejected. About ten tubes remained undisturbed until the sixth week, when they were opened and microscopic examination of material scraped from their surface was made. Although the eye could detect nothing upon the surface of the agar-agar, the microscope showed a considerable number of tubercle bacilli scattered over the surface. My first thought was that the bacilli had grown, but examination of the surface of the agar with a lens showed nothing, and I was obliged to conclude, after mature deliberation, that the tubercle bacilli which I had scraped off of the agar and stained were the same bacilli that I had smeared upon that surface during the process of inoculation. Fearing that I might be mistaken in this decision, I replaced the tubes in the thermostat, where they have remained perfectly sterile until the time of writing this paper,—a period of more than four months.

While I should greatly hesitate to pronounce the results of Marpmann's experiments incorrect, I am glad that my own carefully-conducted investigations differ from them. Were we able to prove that the tubercle bacillus assumed the form of spores which could resist drying, could endure excessive heat and cold, could be resuscitated after prolonged untoward environment by accidentally securing lodgement in the lungs or tissues of animals, together with harmless organisms whose oxygen-excretion should furnish them the needed vitalizing substance, our hope of ultimately securing the total extinction of this dread malady would be greatly lessened. It is largely upon the strict parasitism, slight independence, and delicate nature of the tubercle bacillus that we build our hopes at present.

In further criticism upon Marpmann's paper, I would add that the very principle upon which it is based is a fallacious one. Koch first suggested that dead tubercle bacilli, on account of poisonous substances contained in their protoplasm, might be able to cause tubercles. Prudden and Hodenphyl have proved this to be the case, and Vissmann, upon whose observation that tubercle bacilli boiled for five minutes, and upon the following day for two and a half hours, could still produce tubercles, Marpmann creates the fabric of his paper, has been compelled to admit that these bacilli were dead, and that the tubercle production

was not a sign of their vitality, but rather the result of poisonous proteins contained in the dead bodies of the bacillus.

That tubercle bacilli occur in the dust of streets and houses frequented by tuberculous patients has been proved again and again; in our criticism we make no attack upon this point, or upon the discovery of them in such dust in their perfect or fragmentary form. From the many writings that have entered into the literature of tuberculosis, and from the investigation reported above, however, it seems very uncertain that these bacilli or bacillary fragments can retain their vitality after boiling for an hour, a half-hour, a quarter-hour, or after boiling at all.

RAYNAUD'S DISEASE.[1]

By Charles P. McNabb, M.D.,

Professor of Obstetrics and Diseases of Children, Tennessee Medical College.

I will not enter into an historical description of Raynaud's disease further than to state that Sir Benjamin Brodie is said to have described it in his "Lectures on Nervous Disorders," published in 1837, and it was subsequently mentioned by others, but to Maurice Raynaud is due the credit of giving it a place in medical nosology, which he did in his Paris thesis in 1862, calling it "Symmetrical Gangrene of the Extremities."

Of American papers of note on the subject should be mentioned those of Thomas A. McBride, of New York, in 1878, in which he called the disease "Digiti Mortui." He was followed in the same year by S. Weir Mitchell, in a paper describing a "Rare Vaso-Motor Neurosis of the Extremities." Later in the same year Chas. K. Mills describes an affection met with by him as a "Vaso-Motor and Trophic Affection of the Fingers." J. Collins Warren published a splendid paper on "Symmetrical Gangrene of the Extremities."[2] Dr. R. W. Taylor[3] publishes reports of cases of "Raynaud's Disease," and my friend, Dr. Ben. B. Cates,[4] of Knoxville, published an able paper on "Nitro-Glycerin in the Treatment of Raynaud's Disease," with report of a case.

The disease may be defined as a vaso-motor neurosis, characterized by an exaggeration of the excito-motor powers of the cord presiding over the vaso-motor centres, resulting in angio-spasm, producing (1) a

[1] Read before the East Tennessee Medical Association at Knoxville, Tenn., May 25, 1894.
[2] Boston Medical and Surgical Journal, January, 1879.
[3] Journal of Cutaneous and Genito-Urinary Diseases, October, 1890.
[4] University Medical Magazine, February, 1892.

local syncope; (2) local asphyxia or cyanosis; and (3) local or disseminated points of necrosis.

The etiology of the disease is unknown. It occurs oftener in females than in males, and oftener in young adults than in the aged or in children. It is found most frequently in persons of a neurotic temperament, and is occasionally found associated with disease of the female organs of generation. Its pathology is likewise obscure. The local syncope is caused by spasmodic contraction of the arterioles of the part. The cyanosis is due to dilatation of the capillaries and smaller veins associated with arterial spasm, thus allowing the parts to become distended with venous blood. Persistence of the above conditions for too long a period results in small gangrenous ulcers of the part, which finally slough out and heal, leaving small scars indicating their former site. Later, trophic changes occur, resulting in permanent deformity. Behind all of these changes there may be, and most probably is, some pathological condition involving one or more of the vaso-motor centres in the cord.

Symptoms.—Occasionally the disease is preceded by disturbances of digestion or of the reproductive functions, or by hysterical phenomena, anemia, or headaches; but in the majority of cases it appears without premonitory symptoms, the patient becoming first aware of its existence by the ischemic condition of the parts affected. These are usually the phalanges of the fingers and toes, but the ears, tip of the nose, and cutaneous areas on the body may be the site of the disturbance. This stage is the state designated as "local syncope," in which the fingers and toes, as the case may be, look absolutely bloodless, the skin is wrinkled like the hands of a washer-woman, and of that ghastly white color not met with elsewhere except in cadavers. It is a condition also of anesthesia. The parts can be pinched or cut without producing pain or the escape of blood. The processes of metabolism are arrested and the temperature is below normal. Instead of a stage of syncope, the first stage may be one of erythema due either to paralysis of the vaso-motor constrictors, or to irritation of the vaso-motor dilator centres. In this condition the affected parts are red, swollen, and painful, with increase in the local temperature. This condition may become permanent, which soon leads to trophic changes, or it may disappear without passing into the next stage,—that of asphyxia. The condition of local syncope may also disappear without passing through the second stage of the disease, but it is usually followed by it. The first stage may last a few moments or several hours, gradually passing into that of cyanosis, which is the result of either spasm of the veins, preventing the blood from escaping from the part, or it is caused by complete closure of the arterioles, which, by removing the *vis a tergo*,

allows the venules and capillaries to become distended by regurgitation. The appearance of the parts in the second stage varies from an ashy-leaden to a dark, almost black color. The vessels are distended and are swollen and painful. Anesthesia is rare, and hyperesthesia is common. From excessive radiation of heat and cessation of metabolism the temperature of the parts is below normal. The stage of cyanosis may pass away in a few minutes or a few hours, leaving no trace, or it may continue for several hours or even days, resulting in local gangrene of the parts affected. The third or stage of gangrene is always preceded by cyanosis, and is the result of the arrest of nutrition. The first appearance of gangrene is in small blisters coming out on the pulps of the fingers, which are filled with clear or blood-stained serum, pus, or blood. They soon open and discharge their contents. A dark crust forms over the abraded surface, beneath which ulceration goes on, usually involving only the superficial layers of the corium, but it may destroy even the whole terminal phalanx. The ulcers are surrounded by an areola of inflamed tissue which may be red or almost black in color. Trophic changes may so shrivel and distort the members as to render them useless appendages.

The prognosis is favorable so far as life is concerned, but the disease usually persists in spite of treatment, occasionally allowing an armistice of a few weeks or months, only to return with greater violence until, in many of the cases reported, the poor victim's condition becomes pitiable in the extreme. Others pursue a milder course, continuing many years without leading to trophic changes or impairing the general health, and still a few others make permanent recoveries. Treatment has been unsuccessful in most cases. It has included galvanism, antispasmodics, massage, nervine, and general tonics.

Dr. Cates is, so far as I have seen, the first to use nitro-glycerin in this affection, and his patient, with whom I am personally acquainted, was markedly benefited by the treatment. I will report the following case, believing it will be of interest on account of the results of treatment, and of the fact that it is unique in some respects:

Miss E. D., age twenty-six years, of a neurotic family and temperament, had typhoid fever in 1890, aside from which she has enjoyed fair health except the exanthematous fevers, several of which she had in childhood. I was called to see her for an affection of the fingers of her left hand in March, 1893. From her description of her symptoms, I thought it was Raynaud's disease, and advised her to come to my office immediately on the appearance of the next paroxysm. She came on the next morning, when her hand presented the following appearance: The thumb and forefinger were swollen and black up to the metacarpal joint, while the second, third, and fourth fingers, and the entire hand

to the carpo-metacarpal joint, were ghastly white and wrinkled, like the fingers of a washer-woman, but they looked exactly like "dead fingers." The temperature of the affected members and area was much below normal. A Hagedorn needle passed into the skin of the syncopal fingers gave no pain and the prick did not bleed, but when the second stage supervened, which it soon did, the little wound bled a few drops and caused slight pain. The transition from the first to the second stage was gradual, the cyanosis, beginning in the pulps of the fingers and extending upward until it covered the entire metacarpus, just as the syncope had done, occupying about one hour in passing from the first to the second stage. By the time the last three fingers and the metacarpus had become cyanosed, the thumb and first finger were slowly resuming a natural appearance, this change also beginning in the terminal phalanges. The paroxysm had lasted about a half hour when I saw the patient, and I watched the case one and a half hours before the parts regained their normal appearance, after which there was not the slightest difference in the appearance of the two hands. The general health was perfect. The digestive, excretory, and generative organs were evidently in a normal condition. And nothing abnormal was detected in the thoracic or abdominal cavities. The heart's action was regular in rhythm, but rather accelerated in frequency, the pulse being 82 per minute. A peculiarity in the circulation on the affected side is an anomalous distribution of the radial artery, which cannot be felt in the forearm at all, but is felt pulsating faintly between the second and third extensor tendons of the thumb. Circulation is as free in this hand as in the other except during a paroxysm.

While the family history is of a neurotic character, there is no marked peculiarity in any member as far back as the history can be traced, except that one brother of the patient is idiotic. The patient was placed on nitro-glycerin, $\frac{1}{100}$ grain three times a day, and the remedy was increased to $\frac{1}{50}$ grain, which promptly arrested the paroxysms, and they did not return until September, when there was another attack, affecting an area about three inches square below the axilla on the left side.

On inquiry it was found that the medicine was left off two months before, and a return to the nitro-glycerin in the same dose again stopped the disease. The medicine was stopped again in January, 1894, and the disease returned in a very mild form in April, this time affecting the fingers as at first, when the remedy was again administered with the same prompt effect in arresting it as it had formerly done. That the case is not cured is evident; but the prompt and decided effect of the treatment entitles the remedy to a thorough trial in a series of cases.

THE CONTAGIOUSNESS OF TUBERCULOSIS AND THE PROVINCE OF THE BOARD OF HEALTH IN ITS PREVENTION.[1]

THE Philadelphia Pathological Society recently devoted a meeting to the discussion of the above subject, which was introduced by the following remarks of the President, DR. J. H. MUSSER: The registration of tuberculosis is under consideration by the Board of Health of this city. The views of medical societies have been presented to the board. It is fitting that the Pathological Society, the members of which have studied with great care the questions involved and are most familiar with the etiological factors productive of the disease, should present their views.

Before the registration of this disease can be intelligently discussed, the various modes of infection should be well considered. The committee have deemed it proper to ask competent gentlemen to lay before the society the avenues by which the specific micro-organism enters the system, and to point out possible ways of blocking their entrance. Accordingly the programme in your hands will be followed out, and I will call upon Dr. Hughes to open the discussion.

INFECTION THROUGH THE RESPIRATORY APPARATUS.

BY WILLIAM E. HUGHES, M.D.

In opening the subject for discussion this evening, my necessarily limited time will permit me only to touch briefly upon the most important questions involved. I shall not discuss at all the contagiousness of tuberculosis, that may be taken for granted, and need not engage our attention, for, I take it, it has been so well proven as to be now accepted without question. Nor is it necessary to dwell upon the contagious element; the tubercle bacillus and tuberculosis are so constantly associated that there has ceased to be doubt as to their relationship of cause to effect, and this bacillus must be looked upon as the contagium. The first problem, then, that really concerns us is its method of transmission. One thing must always be held clearly and constantly in view in the study of the transmission of tuberculosis; that is, that there are varying degrees of susceptibility, and, further, that it is possible for the tubercle bacillus to lie a long time latent, to finally, under changed conditions, eventuate in an outbreak of tuberculosis, whose cause is so remote that it cannot be definitely ascertained.

Most cases of tuberculosis being primarily pulmonary, it is proba-

[1] Discussion before the Pathological Society of Philadelphia, February 15, 1894.

ble that the great highway along which the tubercle bacillus gains admission to the system is the respiratory tract, and its study thus assumes primary importance.

In the naso-pharynx tuberculosis is rarely primary. This results, probably, largely from the protective power which the nasal mucous membrane seems to possess: experiments having apparently shown that it has a decided bactericidal action. Again, the structure of the naso-pharyngeal mucous membrane possibly has much to do with its non-adaptiveness to the reception of the bacillus. Tuberculosis would result here, then, from implantation of large amounts of bacilli deep in the tissues, which could be accomplished by a direct transferrence of tuberculous matter by means of the finger. This could easily be guarded against. It is probable, too, that tuberculosis could be aided by a change in the mucous membrane resulting in a nasal catarrh, or an hypertrophy of the pharyngeal tonsil may favor tuberculosis of these passages. This, though, has more importance indirectly. Entailing, as it does, mouth-breathing, the lungs, robbed of the protection afforded by these upper air-passages, are the more easily infected. As this condition is common in the strumous diathesis, where the soil is ready for a luxuriant growth of bacilli, it becomes the more important, and suggests the possibility of the prevention of tuberculosis by an early and radical treatment of every case of obstruction of the naso-pharynx. Naso-pharyngeal tuberculosis is, then, of comparatively little importance, and can be easily prevented by the simplest precautions of personal cleanliness.

The larynx, too, is rarely affected primarily, and the laws which govern its infection are the same as apply to the lungs.

To the lungs, then, we must look for the most common source of infection, and to the inspired air as its carrier. The source of tubercle bacilli infecting by way of the lungs is in the expired breath of a patient affected with tuberculosis, the expectoration, or the discharge from open tuberculous sores. The expired air during ordinary respiration must rarely contain bacilli, but during coughing enough of the tuberculous pulmonary secretion may be nebulized to make it possible that tuberculosis may be thus transferred. But to have such direct transferrence close and continuous proximity is necessary, and it needs scarcely be said that with proper precautions this can most easily be prevented. Here a thorough instruction of the attendants upon a tuberculous patient and a realization of their danger would fully accomplish the result. An additional precaution could be the wearing over nose and mouth of an apparatus so constructed as to filter from the inspired air all germs. The efficacy of the apparatus could be aided by the addition of some bactericidal substance, as, for instance, carbolic acid.

But, as was said, this mode of infection must be rare; the great danger lies in the inhalation of air laden with bacilli derived from dried and pulverized tuberculous matter. Here such precautions as have just been mentioned would be of no avail; they are too irksome to be taken continuously, and unless taken continuously would fail.

It has been demonstrated that inert foreign particles inhaled and coming in contact with the cells lining the alveoli or finer bronchi pierce these cells and gain access to the intimate pulmonary structure, there to lie encysted or to be transferred along the lymph-channels to the bronchial lymph-glands, and this, too, regardless of the structure of such particles. It is scarcely to be questioned, then, that tubercle bacilli pursue a similar course. Once inhaled, they may be thrust back by the ciliated epithelium or, covered with mucus, expectorated, but at some time or other they may find lodgement. Intruded into the pulmonary tissue, if the susceptibility be sufficient, they immediately set up a tuberculosis, or, if the conditions be not favorable to their growth, they may be carried to the bronchial lymph-glands. Here their existence may end, or, if conditions eventually favor their growth, a tuberculosis of the gland is set up, which may eventually infect the lung. That they are thus present in bronchial glands much more commonly than is generally suspected is shown by inoculation experiments, which have proven their existence in almost half the cases, supposedly healthy, investigated. It is obvious, then, that here the strictest precautions must be taken, and that this is the proper place wherein efficient legislation might step with greatest advantage to prevent infection.

So little is known of the life history of the germ of tuberculosis that nothing can be said positively of its length of viability; but it is probable that dried and kept under proper conditions it may retain its virulence indefinitely; the more forcibly is this true with regard to spores, notably refractory in the case of any micro-organism. This is well demonstrated practically by the incidence of tuberculosis in certain houses where a long series of cases have arisen in different families occupying them.

Granting that infection by way of the lungs is the most frequent mode, and that it is brought about usually by the inhalation of inspissated tuberculous matter, it can readily be seen why tuberculosis has become such a common disease, and why so many cases originate that cannot be traced to any particular source. The conditions which aid its transmission must be, first, a drying of the infecting matter, and, second, such as will favor its pulverization and wide dissemination. And, first, the desiccation. As long as tuberculous matter be kept moist, the bacilli are in a mass, not to be conveyed except by direct contact,

and easily dealt with. The first precautions, then, to be taken are to keep such matter moist and intact, that it may be most surely destroyed. This can be accomplished only by care on the part of the patient and his attendants; it can scarcely be controlled by legislative action; it falls rather within the scope of the attending physician.

Once dried and pulverized it has passed largely out of our control, but even here there are many precautions that may avail. In the dissemination of dried tubercle bacilli and their introduction into the respiratory apparatus dust plays a most important *rôle;* the particles of the dust act as carriers of the bacilli and favor their transmission, if they are not immediately responsible for it, into the cells of the pulmonary tissue. This would teach one lesson most emphatically,—the accomplishment of municipal cleanliness.

To sum up: tuberculosis is a contagious disease and is transmitted from one case to another by tubercle bacilli. The commonest origin of the bacilli is in the expectoration or in the discharge from a tuberculous sore. Infection by way of the respiratory apparatus is by far the commonest mode, and is brought about rarely by direct inhalation of nebulized tuberculous sputum, commonly by inhalation of dried bacilli. Close contact with a tuberculous patient favors its transmission, but is not necessary, as the dried matter may be widely disseminated by dust and winds. The virulence of the bacilli may be retained indefinitely.

As to the necessity for the attempt to control the spread of tuberculosis there can be only one view. Always at the front in the comparative death-rate it has kept steady pace with the increase of population in spite of our bettering sanitary conditions. Other contagious diseases have been controlled, their death-rate has lessened, some of them have fallen from a high pre-eminence to insignificance, but tuberculosis has remained unchanged. Cannot this stigma be removed? Must it be that we acknowledge ourselves powerless to control the ravages of this scourge?

The very assumption of its contagiousness carries with it the axiom that it must be preventable. Here lies the duty of the board of health. The indications are plain, there are merely to be determined the ways of meeting them.

In dealing with a tuberculous patient, while we must recognize that such a patient has rights, yet the rights of the community far outweigh them. We should be governed by no sentimental or personal reasons, but deal with the condition from an abstract point of view. Unfortunately, the general public is still too sceptical or careless of the danger that lies in tuberculosis. They are aware only in a vague way of its contagiousness, or totally incredulous of it.

The first duty, then, and surely at present the most pressing one, is to insist on this doctrine of contagiousness, to educate the public up to the point where they will appreciate their danger, and intelligently welcome and aid efforts made to curb infection. This might be done by a constant and careful dissemination of pamphlets bearing upon the subject, and by systematic and regular efforts indirectly to accomplish the end.

The most radical method of dealing with tuberculosis would be to segregate its victims in special hospitals, or keep them under constant surveillance, but this, from every point of view, is impracticable. One thing, however, in this connection is most practicable, that is the strict regulation of hospitals which at present contain wholly or in part tuberculous patients.

The placing of tuberculosis in the list of contagious diseases, of which notification is required, seems to me at present inexpedient; public opinion is not yet ripe for it; and until such a course is backed up by public opinion it is likely to become reactionary, and worse than useless. This is to be deplored, but it is nevertheless true. Let the Board of Health arouse the people to the danger of close contact with tuberculosis, let it teach that every particle of tuberculous matter, dried and wafted abroad by the winds, becomes a menace to the community, and the community will eagerly welcome their efforts towards systematic aid. It goes without saying that our duty here as physicians is clear, we must aid this education, we must clearly and distinctly point out the danger that lies in sputa and discharges, and emphasize this danger by constantly superintending their destruction.

If the times are not yet ripe for the board of health to assume charge of individual cases, a broad field yet lies before it in disinfection. As houses which have contained tuberculous patients are likely to contain the germs of the disease, let them, after the death of the patient, be thoroughly disinfected under intelligent supervision. Clothing too, which might have become infected, must be destroyed, or, if too valuable, disinfected. Houses too, which have become empty through removal of a family containing a tuberculous patient, should be required to be disinfected before another family is permitted to occupy them. In order to become aware of the existence of such houses the Board of Health would have to be notified, and this might be made the duty of the attending physician. All vehicles of public transportation, cabs, street cars, railway cars, all of them broadcast sowers of contagion, could be with benefit at regular intervals disinfected.

Much good has already been accomplished by the half-hearted attempt to prevent expectoration in street-cars. Let this good be further enhanced by the establishment of a rule, and its strict enforcement, which will altogether do away with this most nauseous evil.

Lastly, as dust is so intimately associated with the dissemination and transmission of dried tuberculous matter, a successful effort towards perfect cleanliness in the streets would, aside from its other advantages, be of material aid in this warfare against tuberculosis.

On the Infection of the Human Body by Tuberculosis through the Alimentary Tract.

By Frederick A. Packard, M.D.

Tuberculosis of the tongue, tonsils, and pharynx are, so far as I know, never primary in man, although tuberculous lesions of these parts are undoubtedly seen as secondary lesions in those suffering from tuberculosis of other parts, notably of the lung.

Primary tuberculosis of the stomach is never seen, probably in great part owing to two factors,—the presence of gastric juice and the absence of lymphatic adenoid tissue in the walls of that viscus. The germicidal action of gastric juice has been investigated very fully by Strauss and Wurtz,[1] who found that the inoculation of guinea-pigs with a virulent culture of tubercle bacilli that had been mixed with gastric juice, and allowed to stand for from one to six hours, at a temperature of 38° C., produced a tubercular abscess at the point of inoculation, with the later development of a generalized tuberculosis; when eight to twelve hours elapsed, between the addition of gastric juice and the inoculation, a local tubercular abscess was produced, ending in cure. When the mixture had stood for eighteen to thirty-six hours, inoculation produced no local or general lesion.

In regard to other portions of the alimentary tract much can be said as to the occurrence of tubercular lesions.

It is scarcely necessary to go over much of the ground in relation to this interesting class of lesions. Proofs of the *rôle* played by the tubercle bacillus in bringing about contagion, and of its existence in all tuberculous tissues, are at this time too familiar to need even mention.

Some points in regard to intestinal, peritoneal, and glandular tuberculosis may, however, be discussed to advantage.

That the ingestion of tuberculous human sputum is capable of producing tuberculous lesions in the alimentary tract is undoubted. Proofs of this are furnished by the occurrence of rare cases of tuberculous gastric ulcer in the course of phthisis pulmonalis, as in the case reported by our President.[2] The strange fondness of a dog for the sputum of his tuberculous master proved that the ingestion of tuber-

[1] Archives de Médecine experimentelle et d'Anatomie pathologique, Vol. I, 1889.
[2] Medical Press and Circular, October 19, 1892.

culous sputum could also give rise to tuberculous intestinal lesions, as was reported by Jacobi; while the frequent occurrence of tubercular ulceration of the intestines in the course of phthisis is probably, at least in the great majority of cases, due to the swallowing of the patient's own saliva. Beside the method of infection of the alimentary tract by tuberculous material contained in the saliva, there is also the possibility of the infectious material being introduced with the food and drink.

The animal most liable to infection by tubercle which at the same time furnishes food to man is the cow. The frequency with which the bovine class is affected by tuberculosis appears to vary much in different localities, due doubtless to variations in the care bestowed upon the animals in various districts,—for example, in the very exhaustive report of Lydtin, Fleming, and Hertsen, presented at the International Veterinary Congress held at Brussels in 1883, it is stated that, according to Wolf, in the environs of Leibnitz 15 per cent. of the cattle are tuberculous; that, according to Zürn, one-fifth of the cattle in the environs of Jena, in the circonscription of Eisenburg, and in the Duchy of Altenburg are tuberculous; that, according to Adam, 2 per cent. to 2.92 per cent. of the animals killed in the abattoir of Augsburg were tuberculous. According to Perroncito the disease is of tremendous prevalence in Italy. It has at times appeared in periodic waves of intensity in the faubourgs of Paris. According to Arloing,[1] at Lyons, where 50,000 cattle are annually slaughtered, 5 per 1000, or 250, are tuberculous. This, of course, does not represent the total number of tuberculous animals, as only the fat are slaughtered for food, and tuberculous animals fatten poorly.

That this disease of cattle is the same as human tuberculosis does not admit of any doubt. With very slight differences the bacillus found in the two classes of animals varies in neither its morphological or biological properties, while its lesions in the two cases resemble each other sufficiently to warrant us in saying that they are practically identical.

That bovine tuberculosis is communicable to man is shown by a case narrated by Arloing, as occurring in the experience of Ischerning, where a veterinary student cut his finger in performing a post-mortem examination upon a tuberculous cow. A mass formed below the skin at the point of puncture, which upon removal showed both tubercles and bacilli.

In 1868, Chauveau[2] fed three heifers with tuberculous material

[1] Congress for the Study of Tuberculosis, 1891, translation in American Veterinary Review for 1892.

[2] Bull. de l'Acad. de Méd., XXXIII, 22.

from the body of a cow and produced tuberculous lesions in the second animals. Since then numerous experimenters have confirmed the facts noted by Chauveau,—Johne, Gerlach, and others. Arloing reports forty-seven experiments made by inoculating rabbits with the muscle-juice of animals with tuberculosis, but without tuberculous lesions in the muscles. In these forty-seven experiments he obtained thirteen positive results,—in other words, he was able to tubercularize 9.4 per cent. of the animals inoculated.

These positive results have been controverted by others. Perroncito,[1] of Turin, reports three series of experiments. He fed more than fourteen pigs with meat from tuberculous cattle for three, four, or more months without their showing symptoms during life or lesions after death that were characteristic of tuberculosis. He then inoculated, either pure or mixed with a little water, the muscle-juice from flesh of tuberculous animals into the subcutaneous tissue or peritoneal cavity of 200 guinea-pigs, with no results after keeping the animals alive for from six weeks to two months. Two cows were inoculated in the same way without result. His third experiment consisted in feeding four pigs with flesh of tuberculous cows for six months without producing tuberculous lesions, "two pigs of English race" being "made to eat several times a notable quantity of tuberculous nodules." Bang[2] inoculated thirty-eight rabbits and two guinea-pigs with defibrinated blood from twenty cows with only two positive results. Of these two positive results one only holds good as to tuberculous lesions being found. The cow from which this blood was taken was suffering from acute miliary tuberculosis following the injection of tuberculosis, and gave a negative result three weeks later upon a repetition of the test as to the infecting power of its blood. Nocard[3] obtained many entirely negative results in experiments upon the infective character of tuberculous meat. He also narrates some experiments wherein he fed some kittens with raw meat for a year without becoming tuberculous, the juice of this same meat having rendered tuberculous one out of four guinea-pigs inoculated intraperitoneally.

In regard to the infecting power of muscle fibre of tuberculous animals, it may be said that further experiments are necessary before it can be laid down as an established fact that such flesh is capable of reproducing the disease when taken into the alimentary canal. The comparative rarity of tuberculous lesions of muscle fibre, and the fact that the meat is but rarely eaten without previous subjection in cooking to a temperature fatal to the bacillus, makes us still more

[1] Transactions Seventh International Congress of Hygiene and Demography, Sect. II, p. 203.
[2] Ibid.
[3] Ibid., p. 204.

doubtful as to the necessity for putting a ban upon the sale of meat from cattle not evidently suffering from gross tuberculous disease.

In this connection it may be well to mention a fact that is frequently lost sight of,—viz., that pigs also suffer from tuberculosis. In the interesting report of Fleming, Van Hertsen, and Lydtin it is stated that in Baden 7800 pigs are annually slaughtered, of which number twenty-two have tuberculosis. This number is too small, according to the authors, as the tuberculous pigs do not fatten well enough to be brought to the abattoir, and are therefore "slaughtered clandestinely or sacrificed *in extremis*, and their flesh is generally employed in the manufacture of sausages."

It is interesting to note that in the two camps that are respectively for and against the condemnation of the flesh of tuberculous animals, the veterinarians are in favor of total seizure, while the investigators in the field of human medicine are in favor of seizure restricted to animals whose muscles are themselves the seat of tuberculous lesions.

Before leaving the subject of infection by meat, I would like to call the attention of the Society to two very important facts. A cow with advanced tuberculosis is usually lean, with the general appearance of ill-health, and will consequently not be apt to be offered for sale or bought by the dealer in meat; such a cow may, however, for some time yield enough milk to pay for her keep. The danger, therefore, from such an animal is from infection by the milk. In the second place, there is some evidence to prove that ingestion of tuberculous material by healthy animals is less apt to produce tuberculous disease than is the same material inoculated subcutaneously,—due possibly to the fact, above alluded to, that the gastric juice inhibits the growth of or kills the bacilli, wherefore it is necessary to bear in mind the fact that, while the healthy alimentary tract can annul the poison, in certain conditions of gastric disorder such protection may not be afforded.

Turning our attention to milk as a cause of tuberculosis in man, we find somewhat greater unanimity of opinion.

Baumgarten found that two ounces of milk to which pure cultures of tubercle bacilli had been added were capable, when administered to rabbits, of producing characteristic tubercular lesions. After a period of latency of two weeks there was found simultaneous enlargement of the lymphatic follicles of the mucous membrane and of the mesenteric glands, without any change in the intestinal epithelium.

The milk from cows with tuberculous lesions in the udders is universally conceded to be dangerous to the consumer. According to Bang, a number of bacilli, generally very great, can be found present in the milk under these circumstances.

The infecting power of milk from cows suffering with tuberculosis,

but without involvement of the udder, is still doubted by some. That it is in some cases, at least, capable of infecting is shown by Bang in a series of experiments; with the milk of twenty-eight such cows he inoculated forty-eight rabbits, and found that the milk of two of the cows was capable of producing the disease; in another series he inoculated forty guinea-pigs with milk from twenty-one phthisical cows, and found that the milk of four was virulent; in a third series of fourteen extremely tuberculous cows, he found that three were virulent.

McFadyean and G. Sims Woodhead[1] obtained positive evidences of virulence in the milk from cows with tuberculous lesions of the udders, as have also Chauveau, Bang, Nocard, Bollinger, and Johne. McFadyean found tubercle bacilli in the epithelium of the milk-ducts or free in the ducts after death. The authors quoted performed inoculations with tuberculous udders or milk therefrom, and obtained positive results in 70 per cent. of their experiments. With non-tubercular udders and with milk from otherwise tuberculous cows they obtained evidence of virulence in two out of thirteen cases, or 16 per cent.

Even with skilled veterinarians the presence of tuberculosis of the udder is with difficulty excluded; and it is conceded that the positive declaration of the absence of tuberculous lesions in the udder of otherwise tubercular animals is with difficulty positively affirmed.

Turning to the clinical evidence in favor of the inoculation of the human being by tuberculous milk, we find some interesting statistics by Woodhead.[2] He found that of 127 tuberculous children, in 43 there was tubercular ulceration of the intestine, of which number 14 occurred between the ages of 1 and 2½ years; 10 between 3 and 5½ years; 6 between 6 and 7½ years; 5 from 8 to 10 years; 6 between 11 and 15 years; while during the first year there was but one case. It will be seen, therefore, that by far the larger number occur during the years immediately following weaning, at which time not only is cow's milk first given as the main article of food, but when also improper feeding is most apt to occur and cause disorders of the intestine that can open the way for tubercular invasion. In the 127 tuberculous cases analyzed, 100 had tubercular disease of the mesenteric glands. The favorite age for involvement of these glands was the same as that for intestinal tuberculosis,—viz., from 1 to 5½ years. In 14 cases there was no tuberculosis, save in the mesenteric glands. Here also we find that 9 of the 14 cases occurred in the period of life mentioned above.

An interesting observation bearing upon the importance of feeding infants with the milk of a herd rather than from the milk of a single cow was made by Gebhardt. He found that the virulence of tuberculous

[1] Transactions Seventh International Congress of Hygiene and Demography, Sec. II, p. 197.
[2] Laboratory Reports of the Royal College of Physicians of Edinburgh for 1889.

milk was much diminished by dilution with healthy milk,—milk ingested in the proportion of 1 to 40, 1 to 50, and 1 to 100 parts of sound milk being incapable of producing tuberculous lesions. He found that intraperitoneal or subcutaneous injection of a dilution of 1 to 1000 was productive of tuberculous lesions, but that when ingested there was no such action by a dilution of 1 to 8.

What conclusions, then, can we reach in regard to the use of meat and milk of tuberculous animals? There is still doubt as to the infective quality of meat from tuberculous animals. That there is some danger cannot be denied, as, although muscle-juice of tuberculous animals may have been followed by negative results in the hands of some experimenters, others claim to have found it capable of infecting. Besides this, we consume with the actual muscle fibre much other tissue, intramuscular connective tissue, and small lymphatic glands seated therein. Where it is evident that the tuberculosis is more than a local lesion, as it would seem apt to be for some time in bovine tuberculosis, the meat would be uninjurious if properly cooked or salted. Where the animal is suffering from disseminated tuberculous lesions the risk is far greater, and the flesh should be condemned.

In regard to milk there is much more reason for care. In the first place, the boiling of milk preparatory to its consumption is a comparatively rare procedure, save in the case of children. In the second place, such boiling undoubtedly interferes to some extent with the digestion of milk. In the third place, the milk is ingested by children in whom an easy lodgement for the bacillus is found in the readily-disturbed intestinal tract. In the fourth place, the products of milk, many of them, cannot be sterilized by heat,—*e.g.*, butter and cheese, which have been proved to be infective for 120 days and 10 months respectively.

While the flesh of animals with tuberculosis cannot be said to be always liable to produce intestinal tuberculosis, it can be safely said that the use of the milk from a tuberculous cow with or without involvement of the udder is distinctly dangerous, particularly where the milk of such a cow is exclusively used without admixture of healthy milk.

What, then, is to be done by boards of health in endeavoring to prevent the spread of tuberculosis? Inspection of all meat and all milk consumed, with condemnation of all tuberculous animals, is theoretically the only method that can be thorough. Practically such general inspection is impossible, and general condemnation of all meat from an animal with local tuberculous lesions is too expensive a procedure for any commonwealth. Practically, much could be done by inspection of herds and their quarters with the object of preventing the development of the disease on the farm. At the same time milch cows evidently tuberculous could be isolated or condemned, so at least removing some of the danger of infection through milk.

Surgical Tuberculosis.

By G. G. Davis, M.D.

While tuberculosis is usually regarded as pre-eminently a medical disease, it should not be forgotten that it plays almost as great a *rôle* in surgery as in medicine; indeed, if the sum totals were taken, I believe there would be found far more cases of its surgical than of its medical manifestations. The latter form has assumed the most importance, because attacking such vital organs as the lungs, meninges, and intestines, it is more fatal, but surgical tuberculosis involves the bones, the joints, lymphatic glands, the genito urinary tract, the skin, and other tissues. Surgical tuberculosis is localized, medical tuberculosis is more constitutional, and the distinction is one more clinical than pathological in character. Both have the same fundamental cause, and prophylactic measures directed against one form works likewise against the other. Surgical tuberculosis affecting as a rule limited areas of the body, and oftentimes those not essential to life, generally pursues an essentially chronic course. Unlike the medical affection, it attacks children in preference to youth and adults, although it is encountered at all ages.

Medical tuberculosis has generally a fatal ending, but the surgical form only exceptionally so. How many people do we see with the ugly scars of old tubercular skin or glandular disease the remains of an attack in childhood! Previous to the discovery of the tubercle bacillus by Koch, in 1882, we heard much of scrofulosis and struma, as applied to what are now known to be localized forms or manifestations of tubercular disease. The presence of the bacillus tuberculosis has been demonstrated in almost all of those conditions which were formerly designated as scrofula.

There are, however, some conditions which we would unhesitatingly pronounce as strumous, but which we would not like to say were tubercular. Thus there are children who all would recognize as being liable to the so-called scrofulous affections, yet in whom no one could say there was any evidence of the actual presence of the tubercular bacillus. Again, who has not seen individuals who by their build and temperament are almost foreordained as future victims of tubercular lung disease, yet who are apparently in good health without a sign of actual disease, walking as it were on the edge of a precipice? In former days we would have had no hesitancy in characterizing them as strumous or scrofulous, but now the utmost we can do is to say that they are of a tuberculous diathesis or tendency. This being admitted, we are confronted with the fact that we have a tuberculous condition, and yet no tubercular bacilli to account for it.

We must look for the cause either as being congenital—that is, inherited through the parents—or else acquired, as time progresses either from the habits or life and surroundings of the individual. The influence of heredity is to produce conditions favorable to the development of tuberculosis, but not, as a rule, tubercular disease itself. It is true that tuberculosis has been in some cases congenital, but they are rare.

Of the part which heredity and the other predisposing causes—such as bad hygienic surroundings, etc.—play in the causation of tuberculosis, I will leave for others to discuss. A tuberculous diathesis or tendency having once been developed, then it is only necessary for the tubercle bacillus to gain an entrance for the disease to be established and tubercular manifestations to begin. The presence of the bacillus is, probably, not necessary to a tuberculous diathesis.

As to what determines the localization of the lesions is a question too broad to discuss in all its various details. In general, it may be said to be determined by what is called a *locus minoris resistentiæ*, or place of least resistance,—in other words, that the tubercle bacillus, like the parasite, is fastness itself on the spot least able to repel it. We cannot say with positiveness why in some cases the glandular system should be attacked while the bones escape, nor why in others the joints should suffer while the genito-urinary system escapes, but we can study the phenomena which attend the development of the disease in these various organs.

Surgical tuberculosis may attack almost any tissue in the body, but the parts most often affected are the lymphatic glands, the skin, the bones, joints, peritoneum, and genito-urinary organs.

The question arises, How does the bacillus obtain access to and find a lodgement in these organs? In two ways: either by being transported to them through the system, or else by direct inoculation from without. The former is common, but the latter more rare.

That direct inoculation is possible there can be little doubt. Tubercular material introduced into the lower animals produces at once a localized lesion, which is speedily followed by glandular and then by general infection. Even in man the question has been decided in the affirmative. There have been too many cases in which tubercular lesions have followed on slight wounds and injuries, combined with exposure to the tubercular virus for one to question its possibility. The anatomical tubercle, which is found on the fingers of those who make post-mortem examinations, has been demonstrated to be tubercular in character, nevertheless this mode of infection can only occur in exceptional cases.

A possible explanation of the presence of tubercle in these cases

may be given to the effect that a local lesion which has been produced and maintained by mechanical means may become secondarily infected from a depot at a remote part of the body, as the lungs in the same manner as the other tissues become affected, but the prevailing opinion is against this view.

Of the localized tuberculoses, that affecting the lymphatic glands is the most frequent, and the question suggests itself, Is the glandular affection primary? or is it secondary to some other tubercular focus in a different portion of the body? The answer is that it may be either, but usually it is primary, and direct infection is produced by the bacilli gaining entrance into the lymph-channels through some abrasion or lesion of the skin or mucous membrane, and being carried thence to the neighboring gland, where they are arrested and produce their clinical manifestations. The glands of the neck are the most frequently affected, and this is accounted for by the numberless lesions which the parts, owing to their exposure, are liable to. We all know how frequent are the skin-diseases affecting the face and scalp of children and also slight abrasions of the same region. The various neighboring organs also serve as starting-points. Throat and nose affections of a catarrhal and other nature are common, as is also suppurative ear- and eye-troubles.

I have already said that tuberculosis in a limited number of cases may be congenital; this is so from their having become infected *in utero*, and probably accounts for the cases in which marked tubercular lesions occur in very young infants, say a few months old, and particularly in those in which the violence of the affection is marked, as in the pulmonary and disseminated forms. If we accept Baumgarten's theory of the latent properties of the tubercle bacillus, then we can regard more of the cases as being due to inheritance, but the opportunities afforded children for direct infection are so abundant and the form of the disease is frequently so localized and mild in its tendencies that this is apt to be the most common mode of acquirement.

When we come to consider the bones and joints, we have tissues which are not on the surface and can only be the subjects of direct inoculation through the medium of a wound. Therefore the mode of infection is almost always secondary, and this may occur either from a transferrence of the tubercular focus existing in another portion of the body, as the bronchial or mesenteric glands, or else from the ingress into the system of the tubercle bacillus by means of the respiratory or digestive tracts and their localization in these tissues. It is above all here that the *locus minoris resistentiæ* becomes an important factor, and it is usually a slight injury to the structures which causes just sufficient inflammatory reaction to serve as a nidus for the development of the bacillus and localize its manifestations.

In considering tuberculosis of the genito-urinary tract, it is difficult to decide as to the course and mode of infection. The infrequency of local external lesions leads one to doubt as to inoculation being a common cause. Tuberculosis of the external genital in the female is very rare, and in the male it is the epididymis which is most frequently the seat of its commencement, and not the urethra or bladder. Osler believes the kidney to be the most frequent seat of beginning, but surgeons would be more apt to regard the testicle in the male and the ovarian tubes in the female as being more usually attacked. Certain it is that pus-tubes, as they are now being more frequently examined, show that a large percentage are of a tubercular character. The first infection of the genito-urinary tract is probably derived from the blood; the disease after once being there established being propagated by continuity either down from the kidney or up from the testicle. It is but just to say that Strümpell[1] believes it to take place through the urethra.

Of the surgical tuberculoses affecting the peritoneum, mouth, mammæ, and skin, as in cases of lupus, I will only say that lupus is regarded as a tubercular disease, and that, as has been demonstrated in this Society, it is not correct to designate every miliary affection of the peritoneum as being true tuberculosis.

In closing my remarks, in view of the importance which is attached to the discovery of the bacillus tuberculosis by Koch and Baumgarten, in 1882, I would venture to ask that it be not forgotten that the true nature of surgical tuberculosis was recognized and treated as such years before by such men as Köster, Hueber, Schüller, Volkmann, and others.

Infection through the Genito-Urinary Tract.

By Edward Martin, M.D.

Infection through the genito-urinary tract as compared with infection through other parts of the system is exceedingly rare. The parts of this tract most frequently affected are the testicle, the prostatic urethra, and the prostate. The source of infection is of prime importance. It is quite safe to say that tuberculosis is almost never primary in this region. That, however, is a statement which can scarcely be proved. In autopsies of cases of tuberculosis of the genito-urinary tract careful examination will almost always show the presence of the tuberculous lesions elsewhere. It is difficult to account for tuberculosis occurring primarily in this system. A tubercular sore on the external genitals is so rare that, whether it occurs in the male or in the female, it can be regarded as a surgical curiosity. Undoubted cases have,

[1] Münchener medicinische Wochenschrift, No. 31, 1887.

however, been reported. It is, of course, possible to have entrance without a sore. If kept long in contact with a moist, slightly abraded surface the micro-organisms may enter the blood and lymph-channels. There is some proof as to the possibility of this in the fact that tubercular prostatitis often appears in the form of foci, not in the urethra, but following the lymph- and blood-channels. A satisfactory explanation would be that the poison had been carried to the gland by the peripheral lymphatics.

You will sometimes find apparently clear cases of infection from husband to wife or the reverse, but when we consider how common is this disease, we will agree that it is more probably a coincidence when the husband suffers from tuberculosis of the genito-urinary tract at the same time that the wife is suffering with tuberculosis of the lung. In few of these cases have tubercular lesions of the female genitalia been diagnosed. Contagion is so rare in these cases that it may be almost put aside in considering means of prevention.

One very significant thing with regard to tuberculosis of the genito-urinary tract, and, indeed, of general tuberculosis, is that the semen of tuberculous men has been found to contain poisonous materials. If such semen is injected into susceptible animals, it will be followed by the development of tuberculosis, although the microscope fails to show any evidence of the presence of tubercle bacilli. This is significant, and points to a method of limiting the spread of the disease, —a method which is at present scarcely practicable.

The general subject of the diagnosis of tuberculosis of the genital tract is attended with a good deal of difficulty. It is well known that the tubercle bacilli are often not found. I have seen an undoubted tubercular testicle in which the most minute search was made and no micro-organisms found. This has been the experience of others. I have seen the urine from undoubted tuberculous cases examined many times and no evidence found. I think that at times some other bacillus must be mistaken for the tubercle bacillus. I know in one case diagnosed as tubercular prostatitis in which it was thought that the tubercle bacillus was found, yet recovery followed under treatment not likely to have any effect on tuberculosis.

The subject of the prevention of the spread of tuberculosis as it involves the genito-urinary apparatus must, I think, come down to the subject of heredity, and that is one which the board of health has as yet no power to touch.

Tuberculosis in Prisons.

By M. V. Ball, M.D.

The question of infection in prisons is a very complicated one. In studying the death-rate of the various penal institutions throughout

the country we are confronted with curious facts. Auburn and Sing-Sing, New York, with an average death-rate of 1 to 30 of the inmates, and Clinton, in the same State, a death-rate of 1 in 60.

The Eastern Penitentiary of this State, 1 in 90, and the Western, in this State also, 1 in 130.

In South Carolina, Virginia, and Mississippi the rate is as high as 1 in 15; while in Colorado only 1 in 400 of the inmates succumb to disease.

We are able to formulate these principles: (1) That irrespective of the kind of prison, whether cellular or congregate, whether a manufacturing, mining, or farming prison, the greater number of colored prisoners the greater the death-rate. (2) That the nearer to the centres of civilization, the nearer to the metropolitan centres the prisons are, and therefore the more likely to contain the habitual criminal, the greater the death-rate. And (3) the more crowded for space, the greater the death-rate.

In the city the deaths from consumption among adults, between 15 and 45 years of age, average 20 per cent. of all the deaths in that period of life. Among the colored adults the rate is 35 per cent.

In prisons the death-rate from this disease runs between 55 per cent. and 70 per cent. of all the deaths.

For the last sixty years, taken in six periods of ten years each, the percentage of this disease to total deaths in the Eastern Penitentiary has not varied much over 55 per cent., but whereas in the period 1830 to 1840, 1 in every 55 died from consumption; and in 1840 to 1850, 1 in 36; in 1860 to 1870, only 1 to 105; 1870 to 1880, 1 in 105; and in 1880 to 1890, when the prison population was greatly increased from a previous yearly average of 775 to a yearly average of 1050, the deaths from consumption increased in ratio to 1 in 70. In the past four years, with greater precautions and with still greater crowding, the annual death ratio from consumption has been the lowest for three decades, being only 1 in 112 of the average daily population. The negroes are 14 per cent. of the population, and they furnish 32 per cent. of the deaths. The reconvicts or professional criminals are 32 per cent. of the population, and furnish 43 per cent. of deaths. In studies of criminals, we must always bear in mind that from the poorer classes, from the uninfluential, our convicts are obtained, not that poverty necessarily creates crime, but wealth and influence prevent conviction. Therefore it is necessary to compare the death-rate in prisons with the death-rate of the poorer classes, of the occasional laborer, of the pauper, the tramp, and the indolent,—we have no definite statistics on this point. Billings, in his admirable work on "Vital Statistics of Baltimore and District of Columbia," shows that the colored population living in poor wards of

the city have a death-rate three and four times as great as those living in the fine residential portion.

The precautions we take in the Eastern Penitentiary are such that, I believe, most of our prisoners coming from unsanitary surroundings and ill-nourished and badly-cared-for families, bring the infection with them. Inasmuch as other contagious diseases do not occur here, owing to the manner of separation, every prisoner is examined on entrance, and if a cough is present a bacterial examination of sputum is made; if found tubercular, he is placed in a consumptive block where no other but consumptive and scrofulous prisoners are kept. Every prisoner is instructed on entrance, and a card with such regulations hangs in every cell, to keep his spit-pan always with water in it and never to spit on the floor.

Once a week every prisoner must scrub his cell-floor and about once a month the walls are whitewashed. Besides this, free ventilation is obtained. Whenever a consumptive becomes bedridden, he is removed to a hospital where he is nursed carefully. Such has been the rule for the past four or five years, and a marked diminution in the death rate has resulted. Whatever lowers the death-rate of consumption lowers the general rate greatly, since, as before stated, 55 per cent. of deaths are from this disease. The bacillus tuberculosis, like plants in general, require suitable soil, and also moisture in the form of water, oxygen, and heat.

In favor of infection residing in the cell, we have the fact that in 109 deaths from tuberculosis in the past eight years only two have given a family history of this disease.

In the study of this disease, to ignore the plant or the soil or the physical agents, and light and heat, is an *error* many fall in.

A glycerin agar-tube can be kept in an incubator at the requisite temperature for years and no growth of tuberculosis will occur; inoculate this suitable soil with one germ and then give it heat and moisture and air, and its growth will speedily develop; and again, if the tube be inoculated and oxygen or proper heat be kept from it, no growth; and though the heat and the germ are present, a suitably prepared medium is a *sine qua non*. Sunlight is destructive.

Therefore those who argue that dampness and foul air are the sole cause are only partly right, and they who say the lungs must be in suitable condition for contracting the disease are also only partly right. The germ must be first fertile, soil next, and warmth, oxygen, and moisture next.

What can the board of health do?

If we were all beings of the same intellectual advancement and of moral determination, a word from our physician would keep us at home

when our children had diphtheria or scarlatina; it would prevent us from expectorating in public highways; it would keep us from marrying if we were syphilitic or consumptive; it would lead us to tear down an unhealthy house from which we were deriving an enormous rent; it would prevent us from crowding our brethren into cellars and garrets not fit for our dogs to live in. All this could be obtained through quiet moral suasion and through the influence of medical men exerted on their patients, if we were all equally endowed with knowledge and the will to use it rightly.

But, alas! we are not; and for the great mass of humanity "the *fear* of the law is the beginning of wisdom."

When in a street-car a person opposite you expectorates on the floor, and you ask him to desist, he will do so, because you point to a sign ordering its prohibition; were this sign not there you would not dare to interfere with his liberty, and had you dared he probably would resent it.

When a cholera-ship comes into port, a law prevents the passengers from landing. Suppose this law were not in force, what moral suasion could be brought to bear that would keep these passengers on board the ship?

It is said that the consumptive would suffer. What about the suffering of those who are infected by him? It is not a suffering to the friends and relatives to be advised as to the real dangers; it is not a suffering to the patient himself to be taught to consider the rights of others, and among the ignorant and the poor, and the rich, for that matter, too, authority is respected. While advice, being cheap and easily obtained, is not regarded.

The board of health must have more power to use in the tearing down of filth-hovels. The removal of pig-stys in the city was thought to be a good thing. The human stys, which exist in some portions of our city, are much more dangerous to the whole community than these isolated piggeries.

Every civilized government, except ours, seeks to prevent overcrowding in its cities by providing a certain amount of space to each individual,—insuring cleanliness, health, and good morals.

The medical fraternity, which should be the guardian of public health, has done very little in our cities in regard to municipal sanitation. The board of health, which should be representative, has been neglected. Municipal reforms have not been supported or not imitated by the physicians.

We are not doing our duty, as a class, to the community. The placing of pulmonary tuberculosis on the list of contagious diseases merely as an educational feature must be of considerable advantage;

but unless the physicians individually and as a body make themselves more influential in city health matters no law can have much value. Make this a law and see to its enforcement, and the enforcement of other health laws, and the death-rate of the city will take a decided fall.

What has been done in prisons can be done in the community. We quarantine the poor man when his child has diphtheria, and do not even seek to remunerate him for the time lost, a double hardship. What the board of health with the aid of physicians could do to better the surroundings of the consumptive poor would be a blessing to them instead of a hardship.

In the prison we do not allow a consumptive or syphilitic or any other diseased person to be employed in the manufacture of cigars. But in the slums, clothing and other articles of apparel are turned out by the cartload from homes where often the most contagious diseases exist, and where the workshop and living-rooms are combined. The registering of all consumptives would, in a measure, prevent the employment of such in manufacture of articles which are used on the person.

ALUMNI NOTES.

THE following graduates of the medical department of the University of Pennsylvania were appointed hospital internes upon competitive examination :

University Hospital :
Alonzo Taylor,
Sylvanus B. Newton,
George B. Wood,
H. Ross Goodrich.

Rhode Island Hospital, Providence, R. I.:
Charles W. Higgins, Jr.

Kings County Hospital, Flatbush, L. I.:
Franklin Welker.

Maryland General Hospital, Baltimore :
A. Preston Miller.

St. Agnes's Hospital, Philadelphia :
Walter Reynolds,
George H. Forney, Jr.,
Stanley S. Warren.

Mercy Hospital, Pittsburg, Pa.:
Otto C. Gaub,
Hubert A. Royster,
J. Harry Venn.

St. Mary's Hospital, Philadelphia :
George N. J. Sommer,
Archie L. McKinley, Jr.

French Hospital, New York City :
Louis A. Denis.

German Hospital, Philadelphia :
John F. Critchlow,
John Chester Rockafellow,
Sherborne W. Dougherty.

Wilkesbarre City Hospital, Wilkesbarre, Pa.:
Samuel P. Mengel,
Sylvan Myers.

Johns Hopkins Hospital:
William L. Cousins.

Elizabeth General Hospital, Elizabeth, N. J.:
John R. Forst.

Allegheny General Hospital:
Charles A. E. Codman,
Charles H. Shadle.

Chester Hospital, Chester, Pa.:
George A. Knowles.

Presbyterian Hospital, Philadelphia:
W. Hersey Thomas,
Theodore B. Appel,
Henry Page, Jr.,
Walter S. Ellerbeck,
Edward A. Shumway.

Children's Hospital, Philadelphia:
Max Blieden,
Henry Page, Jr.

St. Joseph's Hospital, Reading, Pa.:
Warren E. G. High.

Blockley Hospital, Philadelphia:
William W. Young,
Edward A. Shumway,
Alonzo E. Taylor,
Henry Page, Jr.,
George N. J. Sommers,
H. A. Wetherill,
Grinville L. Angeny,
Hubert A. Royster.

St. Joseph's Hospital, Philadelphia:
Carle Lee Felt,
Thomas F. Aiken,
Robert G. Furst.

Howard Hospital, Philadelphia:
Arthur W. Booth,
Alfred Clayton.

Polyclinic Hospital, Philadelphia:
J. Harry Venn,
Murdoch Bannister.

Methodist Episcopal Hospital, Phila.:
A. K. Detwiler,
Clinton R. Ankeney,
John Oenslager, Jr.

St. Luke's Hospital, Bethlehem:
George W. Farquhar,
Edgar A. Pray.

The following positions have been filled by appointment:

Orthopedic Hospital, Philadelphia:
John J. Robrecht.

Germantown Hospital, Germ'tn, Phila.:
E. B. Alexander.

St. Mark's Hospital, Salt Lake City, Utah:
William Lee Bishop.

St. Timothy's Hospital, Manayunk:
Albert B. Protsman.

Dr. Leonard E. Welch, Class of 1893, who is located at Savannah, Georgia, has recently been made Surgeon and Lieutenant of the First Battalion Georgia Volunteer Guards.

Consulting Physicians Elected.

The Trustees of the State Insane Asylum at Wernerville, Berks County, have elected the following graduates of the University to the consulting staff. Physicians: Dr. William Pepper, of Philadelphia; Dr. William W. Guilford, of Lebanon; and Dr. W. F. Muhlenberg, of Reading, Pa. Surgeons: Dr. De Forrest Willard, of Philadelphia; and Dr. W. Murray Weidman, of Reading, Pa. Ophthalmologist: Dr. Charles A. Oliver, of Philadelphia. Neurologists: Drs. Wharton Sinkler, James Hendrie Lloyd, and Francis Dercum, of Philadelphia.

EDITORIAL.

INCREASED CLINICAL FACILITIES AT THE UNIVERSITY.

During the coming session the clinical facilities at the University will be materially increased by the addition of three valuable adjuncts to the already magnificent equipment of the institution. The new buildings are the Agnew Memorial Wing to the University Hospital, the William Pepper Clinical Laboratory, and the main ward connecting the two smaller wings of the Maternity Hospital already constructed. Ground for all three structures has been broken, and the foundation walls are well under way.

The purposes of the William Pepper Clinical Laboratory are in the same general lines as those of the Wistar Institute of Anatomy, recently dedicated; both are intended for advanced study. The new laboratory is designed for post graduate work, and will possess especial facilities for microscopic and chemical investigations in pathology and bacteriology. It is being built and richly endowed by Dr. Pepper as a memorial to his father. The exterior of the building is to be simple but massive. The walls will be of red brick and terra-cotta, and the roof of green slate. A corridor will connect the laboratory with the Gibson wing of the main hospital. The building will be four stories high, with a basement for heating and ventilating purposes. The first, second, and third floors will be devoted entirely to laboratories, and the fourth will contain quarters for the curator and janitor. Especial care has been taken to secure light, particularly from the north and west.

The new hospital wing, a memorial to Dr. Agnew, is intended to accommodate very nearly all of the surgical departments now belonging to the general hospital. The new wing, which, like the William Pepper laboratory, is to be of red brick, with terra-cotta facings, adjoins the main hospital on its eastern end. In shape, the new portion is very irregular, and consists of a central pavilion, flanked by wings set farther back from the street, long wards extending from each wing towards the rear of the grounds. Between these long wards there is a court sixty feet wide. The wing has three floors, with a basement standing clear of the ground. The servants will be quartered in rooms under the wards, while the basement of the central body of the building will contain the waiting-rooms and dispensaries for the orthopedic department, with an

entrance for patients, and a gymnasium. The eastern part of the first floor will be devoted to the wards of the orthopedic department, the centre to the surgical and gynecological dispensaries, and the western side to the ophthalmic wards and rooms. In the centre, at the rear, there will be a small clinical theatre, with a seating capacity of 130.

The surgical and gynecological departments will have each a ward on the second floor. But the chief feature will be a large clinical theatre, with seating accommodations for 400 students, extending up to the roof, and having private operating rooms, etherizing rooms, and a laboratory beneath the rising seats. A second small theatre directly over the one on the first floor will occupy the rear of the centre of the second floor. All three amphitheatres will be reached by separate stairways entirely cut off by a brick wall from the rest of the building.

The third story over the wings will contain on the east private rooms for patients, and on the west nurses' dormitories. The long wards will be only two stories high. Each of the departments will have its own dispensary, its private operating rooms, its main ward containing twenty-six beds, its isolation rooms, diet kitchen, etc.

The third building under construction is the main building connecting the present wards of the Maternity Hospital, and will complete this department so thoroughly as to make it probably the best-appointed obstetric hospital in the country. The only connection with the present wards will be by means of a covered porch on the north side. It will contain a kitchen, dining-room, baths, and wards, occupying three stories above the basement, for the accommodation of patients previous to their accouchement in the present wards.

THE CAUSE OF DEATH IN CASES OF RUPTURE OF THE BLADDER.

RUPTURE of the urinary bladder is, fortunately, a rare occurrence, yet it is occasionally met with, especially in hospital practice. Not infrequently the rupture has not been suspected, being first revealed at the autopsy. This should very rarely occur in the present advanced state of surgical knowledge. Rupture of the bladder having been diagnosed, authorities are unanimous in respect to the proper treatment, and although the recommendation is not a new one, the clean surgery of to-day should be followed by a much lower mortality than when celiotomy was first advised and practised for this condition.

With almost equal unanimity writers state that intraperitoneal rupture of the bladder, if not relieved by operation, causes death through peritonitis. At first thought, this seems reasonable, not only because of the escape of the urine into the peritoneal cavity, but also

because the symptoms which we have been accustomed to ascribe to peritonitis usually develop soon after the accident.

In the light of recent researches, however, the subject of peritonitis will need revision. In his admirable Lettsomian lectures, Frederick Treves has contributed much towards a better understanding of this subject. He has shown that in certain instances patients have presented the classical symptoms of peritonitis, and after death, post-mortem examination has shown the peritoneum to be entirely free from any evidence of inflammation. He says: "The most common symptoms in cases of fatal peritonitis are those of poisoning and not of inflammation, and the fatal issue is the result of toxemia rather than inflammation of the peritoneum."

In a recent contribution to the *British Medical Journal*, Coats reports two cases of intraperitoneal rupture of the urinary bladder followed by death, and in neither was there any of the ordinary evidences of acute peritonitis found at the autopsy. Acute peritonitis is now known to be the result of septic infection reaching the peritoneum. That healthy urine is aseptic, and that it does not cause peritonitis has been proven by repeated experiments. Normal urine has been injected into the peritoneal cavity of animals without any untoward results. Coats refers to the experiments of Grawitz and Israel, who divided the ureter in a rabbit and allowed the secretion of the corresponding kidney to flow into the peritoneal cavity for months, and yet peritonitis did not result. An unaltered peritoneum is capable of absorbing large quantities of fluid, and to this rule, urine in a normal condition is not an exception. Of course, if the urine was unhealthy at the time of rupture, or if the peritoneum became infected subsequently thereto, peritonitis would surely follow. What, then, is the cause of death after rupture of the bladder? The answer must be that it is a toxemia. The urine being poured into the peritoneal cavity as fast as it is secreted, is absorbed and enters the circulation, to be again excreted by the kidneys and discharged into the peritoneum, the cycle continuing until the blood becomes so highly poisoned as to destroy the higher centres, and with them life itself. Whether such a condition could properly be called uremia is an open question, but for the present, at least, Coats proposes the term "urinary poisoning." It is pointed out also that the condition of the peritoneum is not to be altogether ignored. The presence of even a healthy fluid of a constitution different from that which is normal to the peritoneum may affect its nervous and vascular conditions.

The observations of Coats are not isolated ones. Ferraton has observed two cases of rupture of the bladder, in which the peritoneum was found to be free from inflammation. Hamilton records the same observation in a patient under his own care.

MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.,

ASSISTED BY

M. HOWARD FUSSELL, M.D.

Scarlatina and Guaiacol.

Peckham (*Boston Medical and Surgical Journal*, May 24, 1894) reports a case of scarlet fever with high temperature. The temperature reached 106° F., and the patient was wildly delirious. The temperature and delirium were controlled by the use of guaiacol, rubbed into the abdomen. Previous to the use of guaiacol cold baths had been used without any effect whatever.

The Treatment of Typhoid Fever.

Lee (*Chicago Medical Record*, April, 1894) thus formulates his treatment of this formidable disease. Without waiting for the development of typhoid fever the very first proposition is to make the patient surgically clean. The bowels are drenched with a copious douche of water, either plain or soapy, until the water returns as clean as it enters the bowel. Bathing is performed at regular intervals. The patient is put in a cold pack to reduce the temperature. The internal treatment is uncomplicated, safe, and useful. Its basis is cold water. Large amounts of cold water are given at regular intervals. The food is milk and eggs. Stimulants and drugs are injurious, without exception.

The Diuretic Action of Diuretin.

Pawinski (*Zeitschrift für klinische Medicin*, Vol. xiv, Parts 3 and 4) comes to the conclusion, from his observations, that diuretin does not act through its influence on the innervation of the heart, as does digitalis, but in an indirect manner. By an increase of the urine and diminution of the edema the work that the heart has to do is lessened, and hence its action made more of use to the economy.

The diuretic action of diuretin is often excessive, ten to twelve quarts being sometimes passed in twenty-four hours. The maximum action begins on the fourth or fifth day. The substance is indicated in heart-disease, where digitalis fails to act or cannot be taken. He uses it in aortic regurgitations, where digitalis is sometimes badly borne, and in heart-disease, where there is great irritability of the nervous system. Diuretin gives better results in heart-disease, where there is disease of the heart muscle, than it does in valvular disease. In kidney-disease it is of less value. It is most valuable, however, in high grades of interstitial nephritis, where there is high blood-pressure. Dose is about fifteen grains, ninety grains to be given daily. It is best given in solution.

Auscultation of the Heart in Children.

Azonlay (*Le Progrès Médical*, 1892, No. 39). Endopericarditis is the most frequent heart-disease in childhood. The diagnosis of disease of the valves and of the pericardium is so difficult, owing to the frequent, rapid heart action that one can often only conclude that it is present by a knowledge of its frequency. The difficulties of diagnosis may be partly overcome by laying the child in a dorso-horizontal position, and holding the arm in a vertical position, while the legs are flexed. In this way one may sometimes distinguish between double and single murmurs, and the murmurs at the apex. In this way one may often diagnose the valvular lesions existing with pericarditis.

Acute Nephritis and Skin-Disease.

In the *Jahrbuch für Kinderheilkunde*, Vol. xxxvii, Parts 3 and 4, 1894, four Italian authors are quoted as describing the following cases:

Canali (*Archivio Italiano di Pediatra*, 1891) describes four cases in boys between 6 and 10 years. One was fatal, the others recovered. All of the cases were the subjects of chronic eczema, and the author believes the eczema was the cause of the nephritis.

Regoli (*Ibid.*, 1891) describes one case which was affected with eczema of the hairy scalp.

Felici (*Ibid.*, 1892) describes two cases which for several months had suffered from eczema of the scalp.

Caloni (*Ibid.*, 1893) reports a fatal case in a child, 5½ years old, who had suffered for three weeks with an impetiginous eczema. Micro-organisms were not found at the post-mortem.

Treatment of Tuberculosis by Permanent Aeration.

F. Mouisset (*Lyon Médical*, Vol. lxxiv, 40, 1893) reports twelve cases of tuberculosis of the various organs treated without medicine, but with over-feeding with raw beef and milk and with constant life in the open air. Those who are able to be about go onto the lawn. Those who must remain in bed are placed on a sunny pavilion in their cots. They all feel better. Only once was there hemoptysis. The temperature gradually becomes lower. The general condition of all the patients gradually improved. The weight of eight of the cases increased. The color of the skin and mucous membrane of all improved. In those with tuberculosis of the lungs the sputa diminished.

New Treatment of Tuberculosis of the Lungs.

Carasso Giovanni Michele (*Gazetta degli Ospitali*, November 2, 1893) reports the results of the trial of Brandon's method of using peppermint oil. It is the inhalation of the ethereal oil of peppermint combined with the internal use of an alcoholic solution of creosote, glycerin, and chloroform, with oil of peppermint in the proportion of 1 : 100. His cases *recovered* after the use of the above method. Not only cases in the first stage, but those with cavities and tuberculosis far advanced. In all the cases the bacilli disappeared in from thirteen to sixty days. During the same period the cough and expectoration diminished, the night sweats ceased. The weight increased and the appetite improved. In all the cases the physical condition of the lung improved. The fever diminished and disappeared after a few days. These unusual results were observed in thirty-nine cases of lung-infection without involvement of any of the other organs.

Suprarenal Hemorrhage.

Tuley (*Archives of Pediatrics*, November, 1892) reports the case of a child which died, on the fourth day after birth, of collapse. The abdomen was distended. At the post-mortem all the thoracic organs were found very anemic. The abdomen was filled with blood. The right suprarenal capsule was distended to the size of a goose-egg. The capsule of this organ was torn, and this was the evident seat of the hemorrhage.

Treatment of Valvular Heart-Disease.

Liebermeister (*Deutsche medicinische Wochenschrift*, No. 46, 1893). As most valvular diseases are incurable, the causal and morbid indications cannot be met. It is only in the relative and functional insufficiency in which an entire cure can sometimes be obtained. In heart-disease medicines are to be used only when there are definite indications.

Treatment by digitalis is never to be begun without direct indications. Certain valvular diseases compensate themselves quickly, while it takes a long time for others to do so. The hypertrophy of the heart, so far as relates to its compensation, takes place without artificial interference. The greater the hypertrophy in excess of the necessary compensation the sooner will degeneration of the heart muscle take place. In stenosis, while compensatory hypertrophy is taking place, every unusual movement of the heart diminishes this repair. The patient should, therefore, be at absolute rest in bed. It is only when disturbance of circulation takes place before compensation is complete that any special treatment is necessary. When the patient first gets out of bed light gymnastics should be used, first walking on a level and afterwards climbing to a slight extent. It is difficult to determine in special cases just how much exercise to allow, but every sign of palpitation or of dyspnea shows that the safety-line has been reached. For the continuance of the compensation the heart muscle must be well.

Large amounts of milk are often necessary for this.

During the sickness, alcoholics are to be entirely forbidden or much cut down. For patients who can choose their surroundings, it is best to live in summer at a height of 1500 to 3000 feet in a forest region.

In winter a climate should be chosen in which it is possible to be much in the air. If there is loss of compensation, as shown by hypertrophy of liver, dropsy, etc., it is of the highest importance that the patient be in bed. The rest without medication is frequently the only treatment necessary. If it is impracticable to put the patient to bed, or if the rest alone does not restore the compensation, then digitalis must be used, but the action of this drug will last but a short time, and the author goes so far as to deny it to his patient unless he is at rest in bed. Those who have used digitalis to restore the compensation should return to bed in four weeks, that the compensation may be longer established.

The dose which is necessary to bring about the full action of the drug is from eight to twenty-four grains of the substance. This should be administered in from three to five days. It should be stopped when the urine reaches four to six quarts or when vomiting occurs. It is necessary that between the times of administering these large doses that no digitalis at all be given, or the heart muscle will become accustomed to the use of the drug. If digitalis will not act, we must use strophanthus or convallaria. Of the substances which act most on the kidneys calomel in from three- to six-grain doses three times daily is the most satisfactory. Diuretin and caffeine may be used where there is great palpitation ; cold applications to

the heart region are often of the greatest value. In cases of disturbance of compensation of great intensity, especially where there is much edema of the lungs, bloodletting may be employed with the greatest benefit. The greater the cyanosis and filling of external veins the greater the indications for bloodletting.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

The Surgery of the Gall-Bladder and Bile-Ducts, with Brief Notes of Seventy-Eight Cases.

Robson (*British Medical Journal*, April 28, 1894) speaks of the most prominent symptoms and complications of cases of cholelithiasis which have come under his observation :

(1) Spasms or biliary colic without jaundice, the attacks being repeated at longer or shorter intervals.

(2) Collapse due to the intensity of the pain.

(3) Spasms followed by evanescent jaundice.

(4) Pain followed by persistent jaundice and enlargement of the liver.

(5) Hydrops of the gall-bladder without jaundice.

(6) Ileus due to atony of the bowel.

(7) Acute intestinal obstruction due to paralysis of the gut from local peritonitis, volvulus of the small intestine, or impaction of a large gall-stone in some part of the intestine.

In the majority of these cases, where medical treatment has failed, surgical procedures hold out very good hope of success in nearly every complication, if the patient be not too much exhausted.

Cases complicated with malignant disease are very unfavorable for operation. First, because the subjects of cancer are, as a rule, cachectic and worn down by disease before the surgeon is called in; and, secondly, because such patients are prone to hemorrhage at the time of the operation or subsequently.

The author claims that there is considerable risk in operating on patients that are markedly jaundiced, on account of hemorrhage, but more especially as the jaundice is frequently associated with malignant disease. In order to avert the danger of hemorrhage in jaundiced patients, the author has found that the administration of chloride of calcium for a few days before the operation makes the blood more plastic and lessens the tendency to bleeding both at the time of operation and subsequently.

In jaundiced cases he prefers ligating all bleeding points rather than trust pressure forceps.

In all of the cases operated upon by the author, in which there was malignant disease with jaundice, the gall-bladder formed a perceptible tumor, whereas, when the jaundice was dependent upon gall-stones, no marked tumor was present. A

valuable diagnostic point, the author claims, is tenderness on pressure over some point between the eighth or ninth costal cartilage and the umbilicus.

The so-called diagnostic operation of sounding for gall-stones and aspiration of a distended gall-bladder the author believes to be futile and dangerous, and is much better replaced by a small exploratory incision, when treatment can at the same time be carried out, if required.

The indications for operating in these cases the author gives as follows:

(1) Frequently recurring biliary colic, without jaundice, with or without enlargement of the gall-bladder.

(2) Persistent jaundice ushered in by pain.

(3) Empyema of the gall-bladder.

(4) Peritonitis starting in the region of the liver.

(5) Purulent collections about the gall-bladder.

If the bladder and ducts can be cleared without much difficulty, the opening in the gall-bladder can be sutured to the aponeurosis and drained.

If the ducts cannot be cleared, one of the following procedures may be carried out:

(*a*) Cholelithotrity, the stone being crushed between the finger and thumb or by padded forceps.

(*b*) Choledodectomy, opening the duct, removing the stone, and suturing the duct afterwards. A drainage-tube should always be inserted in the right kidney pouch in these cases.

(*c*) Cholecystenterostomy. This operation may be easily performed if the gall-bladder be dilated. The author prefers the decalcified bone bobbin, as only two sutures must be applied.

(*d*) The daily injection of fluids after an interval of some days, through the cholecystotomy opening, which will either soften or dissolve the concretion. For this, hot water, or a solution of taurochlorate of soda, may be used, or, as the author prefers, injections of olive oil or a 5-per-cent. solution of oleic acid.

(*e*) Cholecystectomy may be required as a secondary operation in cases of stricture of the cystic duct, the common duct being free.

With but very few exceptions a vertical incision along the upper part of the right semilunar line gives ample room.

A Clinical Study of the Effects of Inhalations of Chloroform and Ether upon the Kidney.

Wunderlich (*Centralblatt für Chirurgie*, No. 16, 1894) has examined the urine of 100 cases of ether and chloroform narcosis. The urine was carefully examined before and after, both microscopically and chemically. The investigations give the following results:

(1) Those cases in which albumin is already present, the amount of albumin is markedly increased,—that is, when ether is the anesthetic used.

(2) Albumin is frequently seen after inhalations of chloroform, and seldom when ether is used.

This albuminuria usually disappears in from twenty-four to forty-eight hours.

(3) When chloroform is used, casts are frequently found in the urine, but seldom after ether.

The course of the albumin and casts is, in the author's estimation, an ischemia of the kidney, or an increase in the blood-pressure.

The author, in conclusion, says the so-called "ether nephritis" may be excluded from medical literature.

A Case of Suppurative Pylephlebitis, in which Laparotomy was Performed.

Treves (*Lancet*, London, March 17, 1894) reports the case of a girl, aged 15, who, in September, 1892, was seized with the symptoms of perityphlitis. She had always enjoyed good health, but had been the subject of somewhat troublesome constipation. Four years previously she had a slight attack of perityphlitis, which soon yielded to castor oil, and two years later had a similar attack.

The last attack was similar to the previous attacks, but lasted somewhat longer, but was relieved by aperients. On the sixth day temperature was normal, and the patient in good condition, but there was still some tenderness in the right iliac fossa.

On the eighth day patient had a rigor, and the temperature went up to 103° F. On the next day the pain and tenderness of the abdomen returned.

On the fifteenth day patient complained of pain in her back, just below the last rib of the right side.

On the twenty-ninth day the rigors returned with increased severity, and several times during the day.

As her condition was becoming very alarming, an incision was made in the right semilunar line just below the costal margin. The intestines were moderately distended with gas, but there was no peritonitis. The cecum presented nothing abnormal.

The liver was considerably and evenly enlarged; it was normal in color and about as soft as lung-tissue. The surface was dotted over with minute yellow spots.

As nothing could be found that was causing her symptoms, the abdominal wound was closed, and the patient promptly recovered.

The author regards the case as one of typhlitis or perityphlitis, followed by pylephlebitis.

Ectopia of the Testicle in the Young, and its Treatment.

Bésanzon (*Centralblatt für Chirurgie*, No. 13, 1894) says that in the majority of cases the ectopic testicle soon atrophies. When the testicle has been fixed for a long time in its abnormal position, it soon becomes functionless.

Bésanzon recommends an operation for the relief of this condition, the cord and testicle being carefully dissected free, and attached to the base of the scrotum. In some few instances the cord is so short that the testicle cannot be brought down into the scrotum.

Operations should only be recommended when other means have failed, or when the testicle is freely movable.

The best time for operation is between the eleventh and thirteenth year, as in some cases the testicle descends spontaneously.

When the condition is complicated with a hernia, a radical operation for the relief of the hernia should be done at the same time the testicle is fixed in its new position.

Clinical Studies as to the Influence of Chloroform Inhalation upon the Kidneys.

Rindskopf (*Centralblatt für Chirurgie*, No. 3, 1894,) gives a report of ninety-three cases of chloroform narcosis. In thirty-one cases, albumin, casts, leucocytes, epithelial cells were found in the urine. In the majority of cases the urine clears

up after seventy-two hours. The quantity of chloroform administered greatly influences the character of the urine; chloroform should be given drop by drop continuously.

No case should be repeatedly chloroformed every three or four days. As the kidneys will not have had sufficient time to recover.

Two Cases of Chancre of the Eyelid.

Standish (*Boston Medical and Surgical Journal*, No. 10, 1894) reports the following cases:

Case 1.—Married man, aged 31; noticed a swelling at the inner angle of the lower lid of the right eye.

As no history could be drawn from the man, he was kept in the hospital. In the course of three or four days the pre-auricular and submaxillary glands began to swell.

Patient refused further treatment and left the hospital.

When seen two months later he had a syphilitic iritis and a well-marked syphilitic skin eruption.

Upon investigating the case, a companion of this man was suffering from secondary syphilis. The two men occupied two rooms in the same house and only used one article in common,—namely, a roller towel over the sink in the kitchen. It was their habit upon coming in from their work at noon to wash their face and hands and use the same towel. The second case acquired the disease in the same manner.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., and ARTHUR A. STEVENS, M.D.

Physiological Action of Chloralose.

Cappelletti (*Mem. dell' Accad. delle Scienze Med. in Ferrara*, lxvi, No. 4) gives the results of experiments with chloralose. These are as follows:

General Action.—In frogs small doses increase the reflex excitability. Medium doses cause diminution of voluntary movement, the power to perform which disappears after an amount varying between five and ten milligrammes has been given. In rabbits chloralose produces first a stage of excitement, which gives place to sleep, with a diminution of voluntary movements and exaggeration of superficial reflexes. Convulsions are seen similar to those appearing in the rat. In dogs sleep is preceded by a period of excitement, during which the animal staggers about and is insensible to his surroundings. The reflexes are exaggerated, and the sense of pain is abolished. When the sleep is not profound, convulsions are a prominent symptom. In dogs a dose of fifteen centigrammes per kilogramme is enough to induce sleep. In frogs the frequency and force of the heart-beats is not altered by small doses; with large ones the beat becomes slower and less powerful. In rabbits and dogs the carotid pressure is not affected by small or

medium doses, and it is only slightly lowered by large ones. The heart-beats also are practically unaffected. The respiration is slowed, and in the case of large doses its rhythm is somewhat altered. In rabbits and dogs the temperature is lowered, often to a marked extent.

Action on Man.—The action of the drug was tested only on asylum patients suffering from insomnia, the dose given at the commencement being about three grains. The sleep produced was, as a rule, calm and uncomplicated, the dose necessary varying according to the patient. In cases of slight insomnia three to six grains are sufficient, but in severe insomnia twelve to eighteen grains may be necessary. Sleep came on about half an hour after taking the drug, and was preceded by a period of pleasant drowsiness. Hysterical patients were found particularly susceptible. The smallest doses mentioned produced a sleep of six or seven hours. Large ones, on the other hand, often produced convulsive attacks without sleep. As a hypnotic, chloralose is particularly efficacious when given in the evening. During sleep the reflexes are generally wanting, but in certain cases the contrary is seen. Tactile and painful sensations remain unaltered, as do the pulse, respiration, and temperature. On the disease producing the insomnia, chloralose does not, as a rule, produce much effect. In most cases the sleep is indistinguishable from natural sleep. However, in cases in which large doses have been given, abnormal symptoms may arise, such as flushing of the face, epileptiform convulsions, tremors, headache, uncertainty of speech, and urticaria. Care must therefore be taken to give only small doses to the feeble or hysterical.

Elimination.—Chloralose, as such, does not appear in the urine.

Digital Compression of the Pneumogastric in Paroxysmal Tachycardia.

Dubois (*Sem. Méd.*, No. 14, 1894) has successfully employed digital pressure over the carotid region in a case of paroxysmal tachycardia. The patient was a woman, 50 years old, of nervous temperament, who suffered from frequent attacks of tachycardia, which lasted from five to fifteen hours, and often terminated in collapse. In one of these attacks, the author displaced the carotid a little towards the median line, and made firm pressure over the pneumogastric area, with the result of reducing the cardiac pulsations from 140 to 96 per minute. The seizure was effectually controlled in ten seconds. Moderate compression is sufficient; too forcible pressure over the carotid region may produce syncope.

Europhen.

Oefelein and Neuberger (*Monatsheft für praktische Dermatologie*, 11, 1893) have used europhen in soft sores and other conditions, their cases numbering 200 in all. They found all kinds of wounds quickly heal under it. Great drying powers without local irritation and absence of smell are the principal advantages of europhen over iodoform, and it proved most valuable in erosions and fissures. In forty cases of balanitis, burns, etc., and in four cases of suppurative lupus, the secretion diminished considerably. In soft sores the powder was applied three times daily from the first. It adheres better than iodoform, and smaller quantities are required. Europhen was more satisfactory than aristol in phagedenic soft ulcers, but in tertiary syphilitic conditions it was inferior to calomel. In these affections a 1-per-cent. oil emulsion was also successfully injected subcutaneously without unpleasant results, iodide of potassium being simultaneously administered. Externally europhen was used as a dusting powder, or a 3- to 5-per cent. vaseline ointment.

Sodium Nitrite as a Therapeutic Agent.

Gordon Sharp (*Practitioner*, May, 1894) draws the following conclusions from his experience with sodium nitrite:

(1) Sodium nitrite, being stable, may replace the less stable amyl and ethyl nitrites.

(2) It dilates all the arterioles rapidly, and so relieves the heart quickly.

(3) Disagreeable symptoms may be overcome by combining it with ammonia water or spirit of chloroform, and small doses of morphine.

(4) It is most useful in anginal affections and in irregular heart action.

(5) To obtain the most benefit from its use it should be continued some time after all symptoms have passed away. By this means the heart is able to regain its tone, and so to repair itself.

(6) The maximum dose is four, or the most five, grains, and generally one or two are enough.

(7) Grave's disease would appear to be aggravated by it.

(8) Bronchitis and asthma, in the author's experience, are not benefited by its use.

Therapeutic Value of Phenocol.

Archangelo (*Rif. Méd.*, March 29, 1894), after drawing attention to the very numerous and conflicting statements which have been made about the value of phenocol, summarizes his own opinion as follows:

(1) Phenocol is a remedy worthy of an important position among the newer drugs.

(2) It is a powerful antimalarial agent, a worthy supplement to quinine.

(3) It is valuable in rheumatism of acute character, but useless in chronic rheumatism.

(4) It is of great value in infantile therapeutics, especially in cases of malaria, typhoid, or rheumatism.

(5) It is a good antiseptic, of especial service as an intestinal antiseptic.

(6) It has but little value as an antineuralgic.

Remarks on Methods of Increasing and Diminishing the Coagulability of the Blood with Especial Reference to their Therapeutic Employment.

Wright (*British Medical Journal*, July 14, 1894) summarizes the methods by which the blood coagulability may be increased as follows:

(1) *The Addition of Calcium Chloride to Extravascular Blood Causes it to Coagulate more Rapidly.*—This fact may be turned to practical account of employing weak—that is, 0.25–0.5 per cent.—solutions of calcium chloride as "physiological styptics." The efficacy of these styptics may be increased by combining the calcium chloride with solutions of cell nucleo-albumens,—that is, with albuminous substances which can be obtained from the aqueous extracts of any cellular tissues, for example, thymus, thyroid, testicle, gastric, and other mucous membranes. The addition of a physiological styptic may give us very rapid coagulation. By its very nature, however, it cannot give us the instantaneous cessation of bleeding which we can obtain, if we care to pay the price for it, with an ordinary escharotic styptic.

(2) *The Internal Administration of Calcium Chloride Increases the Coagulability of the Blood.*—The author has shown this to be the case in the blood of ani-

mals, healthy men, and hemophiliacs. In four quite unrelated hemophiliac families, the administration of calcium chloride caused a distinct increase of blood coagulability.

(3) *The Internal Administration of Calcium Chloride often Causes an Arrest of Hemorrhage.*—The author has observed instances of arrest of hemorrhage,—hemoptysis, and frequently-recurring epistaxis, after the administration of calcium chloride. The drug has been especially successful in the treatment of hemophiliac menorrhagia. Mayo Robson has also put similar cases on record,—arrest of bleeding in surgical operations on the liver, and in menorrhagia.

(4) *The Continued Administration of Large Doses of Calcium Chloride is not Effectual in Keeping up a Permanent Condition of Increased Blood Coagulability.*—This fact has been demonstrated by the author in a case of hemophilia, and in a case of abdominal aneurism.

(5) *Inhalation of Carbonic Acid Gas Increases Coagulability of the Blood.*—The author has employed the inhalation of this gas as a therapeutic measure in a case of almost desperate hemorrhage which occurred in a hemophiliac boy. The patient having received an injury on the lip, bled profusely from the frenum, and all efforts to control the hemorrhage seemed futile; finally, a soft India-rubber tube connected with a Kipp gas apparatus was inserted in the child's mouth, and carbonic acid thus administered. Coagulation of blood speedily followed and convalescence took place. In a case of abdominal aneurism the gas was administered from an India-rubber bag, with the result of distinctly increasing the blood coagulability. In administering the gas, the author states that the following facts should be observed: (*a*) It is essential to give a sufficiency of oxygen or of ordinary air with the carbonic acid, not only because a neglect of this precaution causes extreme dyspnea, but also because an anoxyhemic condition of the blood appears to induce a condition of diminished coagulability. (*b*) Intravascular thrombosis may occur when carbonic acid is administered to an animal whose blood coagulability is abnormally light.

Blood Coagulability is Diminished by such Vegetable Acids as Tartaric and Citric Acids.—In view of this fact, the author believes that neutral citrates and acetates instead of vegetable acids should be employed in the treatment of scurvy, a disease in which there is a tendency to hemorrhage.

Rapid Respiratory Movements Diminish the Coagulability of the Blood.—This fact was established by Hasebroek upon himself.

Alcohol Diminishes the Coagulability of the Blood.—The effect of alcohol on blood coagulability has evidently a considerable importance in connection with the therapeutics of actual or threatened hemorrhage.

Guaiacol Applications in the Treatment of Orchitis.

Balzer and Lacom (*Sem. Méd.*, No. 14, 1894) have obtained good results from the application of guaiacol in orchitis. The pure drug may be painted over the inguinal region, or, what is preferable, an ointment containing one and a quarter drachms of guaiacol to the ounce of vaseline may be applied to the scrotum. At first there is a burning sensation, lasting about ten minutes, but this is followed by a marked diminution of the pain. The relief usually lasts from three to four hours. In the most painful cases three or four applications prove sufficient.

If the ointment above suggested be too irritating, one containing thirty grains of guaiacol to the ounce of vaseline may be substituted. The guaiacol relieves pain, quiets excitement, lowers temperature, and induces sleep, but in no way influences the progress of the disease.

GYNECOLOGY.

UNDER THE CHARGE OF

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ASSISTED BY

WILLIAM A. CAREY, M.D., AND H. D. BEYEA, M.D.

Hysterectomy for other Causes than Fibroid and Malignant Diseases.

Penrose (*Medical News*, March 17, 1894), in a paper read before the College of Physicians, states that hysterectomy is frequently indicated for other conditions than malignant disease and fibroma. That, in any case of pelvic disease when there is necessary for cure, an operation on the appendages that renders the women sterile, hysterectomy is a valuable addition to the operation under the following circumstances: when the uterus is diseased; when it is likely to become so; when its removal will facilitate the operation. He has followed this plan since June, 1893, and in a series of seventy-five celiotomies on women for different forms of pelvic disease, exclusive of fibroids and malignant tumors, he has found it a distinct advantage to remove the uterus in fifteen cases, grouped as follows:

(1) Cases of double salpingitis, generally pyosalpinx, the disease extending into the uterine cornea in the form of a hard nodule, or an abscess in the uterine tissue; large uterus; chronic metritis and endometritis; profuse irritating vaginal discharge, probably gonorrheal.

(2) Cases of salpingitis and ovaritis; flexed or displaced uterus, with or without adhesions; endometritis.

(3) Salpingitis, of which tuberculosis is the probable cause.

(4) Cases of ruptured tubal pregnancy, of pelvic abscess, or any accumulation in the pelvis in which the uterus forms part of the wall surrounding the accumulation. The removal of the uterus facilitates the operation and perfects hemostasis. In gonorrheal cases the determination to perform hysterectomy was based on the fact that gonococci had been found in the discharge from the os uteri, or the history of the case and presence of gonorrheal lesions, such as inflammation of the vulvo-vaginal glands or their ducts, urethritis, indicated the gonorrheal origin of the disease; and, finally, in other cases gonococci were sought for by an assistant in the tubal contents during the operation. He believes that in these cases the removal of the tubes relieves the danger of rupture into the peritoneum, but does not cure. The operation of removing, by a wedge-shaped amputation, the proximal end of the Fallopian tube requires the same length of time as hysterectomy and is not followed by perfect hemostasis. Hysterectomy also cures the women of the leucorrhea, which is often the symptom of which they complain the most. He believes cases of leucorrhea in which pyosalpinx has coexisted are incurable. In posterior displacement, with salpingitis and adhesions to the fundus uteri, removal of the uterus gives more promise of cure than simple removal of the tubes. In tuberculous disease of the tubes, if a diagnosis is possible, hysterectomy should always be performed, as from 40 to 60 per cent. of the cases have associated tuberculous disease of the endometrium. In a case of ruptured tubal pregnancy, hysterectomy was performed as a quick method of securing complete hemostasis and avoiding an elaborate drainage of the pelvis. Removal of the emasculated uterus he believes does not injure the women, as has been shown in hysterectomy for carcinoma and fibroma, and, unlike the ovary, the uterus does

not seem in any way necessary for the maintenance of womenly traits, and when removed along with the tubes and ovaries does her less harm, from a psychological stand-point, than the common operation. Where hysterectomy would increase the danger, by prolonging the time of operation, he considers it improper. But, on the contrary, if the patient's condition is such that she can endure the increased operation, he thinks hysterectomy is a valuable addition, provided the uterus is itself diseased to such an extent that it will not readily yield to local treatment; or is so implicated in a pathological condition of the pelvis that its removal facilitates the performance of a complete operation. Statistics show that the removal of the uterus under these circumstances is attended with as small a mortality as the operation of salpingectomy. All the cases in his experience have recovered.

The Pathology of the Uterine Mucous Membrane.

Uter (*Zeitschrift für Geburtshilfe und Gynäkologie*, Bd. xxv) reports the results of the microscopic examination of the tissue removed by the curette in fifty cases of endometritis as follows:

(1) *Endometritis following Abortion.*—In five cases he found cuboid epithelial cells, as decidual cells and connective tissue. In three of the cases a positive diagnosis had previously been made.

(2) *Gonorrheal Endometritis.*—(*a*) *Acute.* The mucous membrane epithelial cells were found destroyed, but the glandular epithelium intact. The chief changes were noticed in the interglandular connective tissue, where the cell nuclei were much enlarged, and a small round-cell infiltration could be distinctly seen. (*b*) *Chronic.* In these cases the mucous-membrane changes were the same as those seen in the ordinary chronic endometritis.

(3) *Chronic Endometritis.*—(*a*) *With Complications.* The cases are divided into two classes, those in which the glands have partially or completely disappeared, and the interglandular tissue shows hyperplastic changes (endometritis fungosa), and those in which the glands are apparently normal, and the interglandular tissue shows a marked increase in the size of cell nuclei (interstitial endometritis). (*b*) *Complicated with Other Disease.* He here reports a case of habitual abortion, always occurring in the first months of pregnancy, where the microscopic examination showed an enormous hyperplasia of the glandular tissue. In two cases of post-partum subinvolution of the uterus an associated acute endometritis was found. In a case of associated carcinoma of the ovaries and uterus, he found a fungus endometritis.

(4) *Changes in the Mucous Membrane in Fibromyoma of the Uterus.*—The mucous membrane showed a distinct increase in the glandular tissue, with a proliferation of its epithelium. The interglandular tissue was usually normal. Uter believes the inflammation of the mucous membrane to be primary, and the development of the fibromyoma in the uterine wall secondary.

(5) *Sarcomatous and Carcinomatous Degeneration of the Uterine Mucous Membrane.*—In a case of sarcoma, the glands had entirely disappeared, the cells of the growth were of different sizes, extraordinarily numerous, and were embedded in a connective tissue stroma. A case of carcinoma of the cervix showed at the fundus of the uterus a hyperplasia of the glandular tissue, with an increase in the nuclei of the interglandular tissue. The cases of carcinoma corporis were part alveolarform and part adeno-carcinoma. These cases represent all forms of disease of the endometrium, except endometritis exfoliata.

Green Pus: the Bacillus Pyocyaneus.

Schimmelbusch (*Centralblatt für Gynäkologie*, No. 8, 1894) writes regarding the pathological significance of green pus and the bacillus pyocyaneus. Green and blue pus is the result of the bacillus pyocyaneus. Through its growth in the secretion of a wound it causes a green coloring matter,—pyocyanin,—and a characteristic sweetish, musty odor, which may be slight or most offensive. This bacillus produces not only green and blue coloring matter, but also, as may be seen in a single wound, yellow and brown. The richest shade or shades of these four colors may be seen. The amount of irritation produced in a wound depends upon the amount of air present,—*i.e.*, oxygen, whether there is a favorable culture medium for the bacillus, and the conditions or quality of the bacillus itself. He then answers the interesting question, why this bacillus appears in clinics and hospitals, and why it always appears in wounds. The wound is not infected through the atmosphere or dressings, or by the hands and instruments of the physician, but the bacillus is normally found on the skin as a saprocyte. It has a predilection for particular parts of the body, as the axilla, inguinal region, anus, etc., and therefore most frequently infects wounds near these parts. Is the bacillus pyocyaneus pathogenic? From experimentation upon animals, and as far as observation upon man has gone, this organism is locally and generally virulent, but the virulence depends upon the character of invasion.

Venous Thrombosis of the Lower Extremities following Celiotomy as a Result of the Trendelenburg Position and Ether Anesthesia.

Strauch (*Centralblatt für Gynäkologie*, No. 13, 1894), since June, 1893, has used ether as an anesthetic with the Trendelenburg position in performing 19 celiotomies (7 ovariotomy, 5 hysterectomy, 3 salpingectomy, 2 ventro-fixation, and 2 extra-uterine pregnancy), and has observed venous thrombosis of the left lower extremity in three cases. The first case was an abdominal hysterectomy for myoma of the uterus. The operation lasted one and a half hours, and twelve and a half ounces of ether were required. On the eighth day following the operation the patient complained of pain in her left lower extremity, and on examination it was found swollen, cooler than that of the opposite side, and subcutaneous, cord-like, veins could be seen and felt. After three weeks the edema and enlarged veins disappeared, and she left the hospital on the thirty-first day, still complaining of pain. The second operation was for the removal of a large cyst of the right ovary. The operation lasted twelve minutes, and six and a half ounces of ether were required. On the tenth day following operation a venous thrombosis appeared in the left lower extremity. Two weeks later she left the hospital, but complained of pain, and there was slight swelling of the limb. The third case was for the removal of a large multilocular cyst of the left ovary. The patient was in the Trendelenburg position for eight minutes, the limbs being held extended by an intelligent midwife, and all pressure in the popliteal spaces thus prevented. The operation continued forty minutes, and eight ounces of ether were required. On the third day following operation the left limb became swollen, and 100 hours after operation the patient awoke with a scream, the respirations were noticed to be rapid, the pulse small and rapid (150), and she was covered with a cold perspiration. The presence of a pulmonary embolism was apparent. Fourteen days after the operation the limb is still swollen. The table does not differ from those used by operators in Germany and Austria, and it could not be the cause of any particular harm. A

thick horse-hair mattress protects the popliteal spaces from any severe pressure on the edge of the table. He believes that since he had for a long time employed chloroform anesthesia with the Trendelenburg position, without a single case of venous thrombosis, and, considering the marked difference in the action of ether upon the pulse and heart, that this complication can well be accounted for in the action of ether anesthesia combined with the Trendelenburg position. It is remarkable that the left extremity is the one always affected. This might be explained in that the left limb was held by the right hand of the midwife. In the first case only is this possible. He advises that the limbs be held extended by an assistant, and should this prove too laborious, a table should be constructed with an arrangement to fix the pelvis to the table, and thus prevent the patient from slipping down the incline.

A Case of Uterine Fibroma associated with Anuria; Hysterectomy and Recovery.

Tuffier (*Mercredie Méd.*, No. 42, 1894), at a meeting of the Surgical Society of Paris, reported a case of uterine fibroma associated with absolute anuria, lasting four days, upon whom he had performed abdominal hysterectomy, followed by recovery. The women had been operated upon for uterine fibroma two years before. Without subjective symptoms a tumor the size of a pregnant uterus had developed during the last ten months. For fourteen days she had had dysuria, and for four days absolute anuria. The patient's general condition was very poor; the pulse was weak, the respirations frequent, she vomited at short intervals; there was marked tympanites, and the bowels had not moved in many days. During the first twenty-four hours after operation she passed thirty-five ounces of urine. The uremic symptoms entirely disappeared after three days, and ten months after operation the patient says she is well.

The Ultimate Terminations of Nerves in the Female Genital Organs.

Gawronsky (*Centralblatt für Gynäkologie*, 1894, No. 11) summarizes the results of his microscopical investigations: There are two sets of nerve fibres in the uterus, one set being distributed throughout the muscular layer without anastomosing, and terminating in multipolar ganglion cells in the submucosa. From these cells spring filaments which enter the mucosa and terminate either in the epithelial cells or in terminal bulbs. The other set, which also traverses the muscular layers, ends directly in the epithelial cells and glands. In the Fallopian tube the nerve fibres interlace freely and give off numerous filaments which terminate in points or bulbs just beneath the epithelial layer. In the ovary bundles of nerves can be demonstrated in the parenchymatous zone, which do not communicate with one another. In some preparations delicate branches can be traced to the follicle, where they end in the theca folliculi or enter the latter after a more or less circuitous course. Fibres are seen frequently which end in terminal bulbs in the membrana granulosa. Fibrils have occasionally been traced through the membrana granulosa to the immediate neighborhood of the ovum, although it is impossible to determine their exact and ultimate termination. In the vagina the nerves in the muscular coat show many sharp curves. At these points lateral branches are sent off which follow the same course as in the muscular layer of the uterus. The fibres change their course after entering the submucosa, form flexures, and reach the epithelial surface and terminate in points or bulbs in the deeper layer of epithelium.

Conservative Surgery on the Uterine Appendages.

J. M. Baldy (*Annals of Gynecology and Pediatry*, April, 1894) states that his experience in so-called conservatism has been unfortunate as compared with what is reported by others.

The number of cases subjected to this method of treatment was twelve. Three of these were forced to have subsequent operations, and the other nine have remained unrelieved, "six of the nine coming under observation from time to time, suffering continually, treated continually, and all of them needing, and will eventually have, a second operation." The subject is considered from the stand-points of the Fallopian tubes, the ovaries, and adhesions. In reference to the tubes the broad proposition is laid down that a tube, whose fimbriated extremity has been destroyed, and whose canal has consequently been sealed, is useless, with but rare exceptions.

Hydrosalpinx may be an exception, but the author feels that the risks to the woman's health of such an operation are too great, and that the chances of failure are greater than those of success. Hematosalpinx should never be so treated, for fear of releasing the poison which nature had shut off from the peritoneal cavity by the formation of adhesions. In regard to the ovaries, it is stated that no matter what the fate of the tubes may be, not only should all sound ovaries be left, but every effort should be made to preserve to the woman as much sound ovarian tissue as possible. A disease which tends to extension and destruction naturally demands the radical removal of the organ. Thus the cases suitable for this conservative plan of treatment are only those in which the ovaries are the seat of small cysts and hematomata, in which a certain amount of healthy ovarian tissue remains intact. Attention is called to the mistake made by some operators of considering as a disease the distention of the Graafian follicles, which is a perfectly normal condition, and, therefore, outside of the domain of surgery. Adhesions in themselves are not considered by the author as indications for removal of the tubes or ovaries. By releasing the organs from the grasp of adhesions, it is sometimes found that the tube is healthy and patulous, and the ovary normal.

Hysterorrhaphy in cases of retroflexion or prolapsus, the stitching of the ovarian ligaments to the upper surface of the broad ligaments, and the employment of other measures at our command, make the sacrifice of organs without an effort to save them unjustifiable. The paper concludes with the following propositions:

(1) The vast majority of Fallopian tubes, whose canals have been closed by pelvic inflammations, have been rendered useless for all time to come.

(2) There is no way in which we can distinguish with certainty those few cases in which the tube might again be rendered patulous; and in experimenting in this direction, practice has clearly demonstrated that infinite harm may be done as against the little good.

(3) It is always well to save healthy ovarian tissue for the sake of the continuance of menstruation and ovulation, when this can safely be accomplished.

(4) Uncomplicated small hematomata and hydrops folliculi do not, as a rule, give rise to distressing symptoms.

(5) It is extremely probable that in the vast majority of cases of uncomplicated ovarian diseases upon which so-called conservative surgery has been used, the relief of symptoms has arisen not from the surgery, but from the enforced rest and its attendant careful nursing.

(6) Adhesions or prolapse do not necessarily require removal of the uterine appendages.

OBSTETRICS.

UNDER THE CHARGE OF

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ASSISTED BY

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Puerperal Inflammation.

Doléris (*Nouvelles Archives d'Obstetrique et de Gynécologie*, No. 3, 1894), in an article upon puerperal inflammation, draws the following conclusions:

(1) Puerperal inflammation is derived from a streptococcus identical with the streptococcus pyogenes.

(2) There exist suppurative inflammations of less intensity in which the staphylococcus plays the principal part.

(3) In the pus of certain cases of peritonitis, and of puerperal lymphangitis, following gangrene of the uterine mucous membrane, vibriones and bacilli of putrefaction may be found. The habitat of the streptococcus is upon the surface, about the point of placental attachment, in the clots that may have formed in the orifices of the sinuses, and in any discharges that may be in the uterine cavity. They exist also in pus, though if this be in a closed cavity the streptococcus soon degenerates or dies.

The pathogenic action of the streptococcus may be,—

(1) Hypertoxic, by its toxines, and limited to the first stage of the inflammation.

(2) Destruction of vitality, and a cause of necrobiosis *en masse* of the tissues.

(3) Pyogenic or septic at the same time. The vitality of the streptococcus is uncertain; the author believes it may lie dormant in the tissues for years.

There are three principal types of this inflammation:

(1) Inflammation and local suppuration.

(2) Inflammation and migratory suppuration.

(3) Hypertoxic infections,—non-suppurative.

The first group represents nearly always the milder complications of recent puerperal traumatism, be they slight or grave.

In the second group, by far the most common, is the mixed migration of the streptococcus. It follows the mucous passages by means of the lymphatics to the pavilion of the tube and the peritoneum, also along the net-work of intramuscular interspaces, perforating thus the uterine walls from mucous membrane to the peritoneum, parametrium, the ovary, or the tube.

Cocaine to Suppress the Secretion of Milk.

Joire (*Le Bulletin Médical*, No. 36, 1894) makes the statement that the lacteal secretion may easily be suppressed, in those cases where it is desirable, by the local application of 5 per-cent. solution of cocaine in equal parts of glycerin and water. The application should be made by means of a camel's-hair brush. Suppression of the secretion will follow in two to six days. There have been no untoward results observed.

The Management of Face Presentation.

Davis (*Medical News*, July 14, 1894) calls attention to the frequency of face presentation, occurring in 1 in 130 confinements, according to the German observers.

The treatment best adapted to secure spontaneous labor in face presentations consists in retaining the membranes unbroken until the time of spontaneous rupture; in sustaining the strength of the patient, and conserving her energies by suitable feeding, stimulation, and anodynes; and in placing her in such a posture as will favor the rotation of the chin anteriorly. The patient should be placed on the left side, with flexed thighs, if the face looks to the left side of the mother's pelvis, and *vice versa*.

The uterus should be brought as nearly as possible with its long axis corresponding to the long axis of the mother's body during labor-pains. If this be carried out, it is quite possible for a face presentation to be spontaneously changed into an occipital one, and for the occiput even to rotate spontaneously to the front. When dilatation is complete, the obstetrician is to choose between radical interference by version or an effort by the method of Baudelocque and Schatz, to correct the face presentation by converting it into an occipital one. This will depend upon the size and shape of the mother's pelvis, the comparative size of the child's head, and the condition of the pelvic floor. When no disproportion exists between the head and the pelvis, and when the pelvic floor, although elastic and resistant, offers no undue obstacle to the mechanism of labor, it is certainly proper to allow the head, under good labor-pains and with good extension, to come down upon the pelvic floor in face presentation, and thus an opportunity be given for the mechanism of labor to proceed spontaneously. Should there be a disproportion between the head and the pelvis, as evidenced by pelvic proportions less than the average, ascertained by pelvimetry, or a large fetal head, as ascertained by palpation, and a thorough vaginal examination under an anesthetic, the case becomes quite different. Davis believes it the duty of the obstetrician to completely change the position, if the pelvis be roomy, by podalic version under anesthesia, by chloroform, or in so enlarging the pelvis that the mechanism of labor in face presentation can continue.

Podalic version is, in well-selected cases, a prompt and efficient method of treatment. Symphyseotomy, he believes, is a procedure of too recent date to occupy an established place in these cases.

Intra- and Extra-uterine Fetation at Full Term; Cesarean Section (Porro).

George C. Franklin (*British Medical Journal*, May 12, 1894) reports the following case: The patient was 33 years old, a V-para, and had been in labor for eighteen hours. Delivery was apparently hindered by some obstruction at the pelvic brim. Although thoroughly examined, but little could be elicited in regard to the cause of the obstruction, and, as the patient was failing rapidly, Franklin determined to open the abdomen. The uterus was exposed by means of a median incision through the anterior abdominal wall; it was incised, and a living fetus removed. The uterus and appendages were then removed.

Low down in the pelvis a large mass was discovered, which ruptured while being examined, expelling a dead full-term fetus. The extraction of the fetus was followed by a terrific, uncontrollable hemorrhage from the regions of Douglas's pouch, cecum, and intestines. This hemorrhage came from the tufts of placenta attached to these regions. The patient died shortly after the operation.

Puerperal Eclampsia.

Calderini, of Parma (*Centralblatt für Gynäkologie*, No. 20, 1894), in the discussion of puerperal eclampsia at the Eleventh International Congress at Rome, recommended, as soon as the labor is in progress, the administration of chloroform, repeated injections of hydrochlorate of morphia, the use of chloral by rectal injection, and the heating of the air which immediately surrounds the patient by the elevation of the bedclothes and the employment of an alcohol lamp. He believes that through these measures the eclamptic seizures may be controlled until dilatation has taken place, that the child may be more easily extracted. He uses also purgatives. In a case which he reported he used before other measures hypodermoklysis of salt solution (chloride of sodium 0.75 to 100.0 filtered and sterilized water). The apparatus used for this purpose is very simple and is used also with good result in the treatment of acute anemia following the bleeding in placenta previa and post-partum hemorrhage. It consists of a bottle stoppered with a rubber cork, provided with two perforations. Through one perforation passes a rubber tube, about two feet long, on the end of which a large size hypodermic needle is fastened. Through the other perforation a glass tube is passed, reaching to the bottom of the bottle and providing for the admission of air.

Sudden Death during Labor and the Lying-in Period.

Vinay (*Lyon Médical*, Nos. 45 and 46, 1893) divides the causes of sudden death during labor and the lying-in period into four classes that stand in less direct causal relation to the exitus: Embolism of the pulmonary vessels; entrance of air into the veins; syncope, shock, and other affections; intracranial hemorrhage, violent spitting or vomiting of blood, large pleural effusions, rupture of a liver abscess.

Vinay, in some of his own cases of pulmonary embolism, has observed certain premonitory symptoms. They are slight degree of dyspnea and sensation of syncope, and occurred in one case eight days and in the other case three days before the embolism. In the last case the patient complained of a violent pain in the breast, and at the autopsy which followed some dry pleuritic adhesions were found. In general, these premonitory symptoms are to be described as due to the separation of the smallest particles of the fragile thrombus, and should be regarded as the most threatening indication for the prophylactic treatment. This form of premonitions may under circumstances pass over into that form of repeated embolism that occasionally terminates in recovery.

Concerning Cesarean Section.

Everke (*Centralblatt für Gynäkologie*, No. 24, 1894) has performed seven Cesarean sections. Twice by the Porro method, with extra-peritoneal treatment of the stump, in one for osteomalacia, VIII-para; good result for mother and child. In the second case the indication was the expressed desire for sterility, X-para, child lived; mother died with pericarditis and pleuritis. Five times he operated by Sänger's method, with two deaths. In four of these cases the indication was narrow pelvis. In one there was a retro-cervical myoma. The myoma was removed subsequent to the section by incision through the vagina. Twice Everke has enucleated myomas from the pregnant uterus. One of these cases was pregnant at the fourth month, and the tumor was as large as the two fists. The patient aborted twelve hours' post-operation. In the other case the patient was pregnant

at the third month. The tumor was as large as a child's head. Four weeks later the patient aborted from the high fever incident to acute gastro-intestinal catarrh. In both cases the sack was united with the abdominal wall.

Twice Everke removed ovarian tumors during pregnancy. In one case the pregnancy was at the second month, and abortion did not follow. The other case was five months pregnant, and aborted in eight hours. Both recovered.

Once Everke had the opportunity to observe spontaneous reposition of a large ovarian tumor intrapartum.

One case of carcinoma of the cervix during pregnancy at the fourth month was observed. The growth was removed without interruption of the pregnancy.

A Case of Partus Serotinus.

Resnikow, of Elisabethgrad, Russia (*Centralblatt für Gynäkologie*, No. 24, 1894), reports a case of long continuance of pregnancy, which was under his observation, and whose authenticity he vouches. Patient was a medium-sized, somewhat anemic II-para. The first child was two years old, having been delivered by forceps at the normal termination of pregnancy, on account of a narrow pelvis (conjugata vera, 10–12½ centimetres) and largeness of the product. On January 11, two years later, her menses ceased. On the beginning of February she experienced the symptoms of pregnancy,—nausea and vomiting. Resnikow advised her to have labor prematurely produced at the end of the ninth month of pregnancy on account of the difficulty in her previous labor, but she refused. The labor, reckoned by Nägele's method, should occur on October 18. On December 14, Resnikow again saw the woman, and found her still pregnant. She had experienced from October 18, for six weeks, daily, weak but perceptible pains lasting several hours. These had ceased for the last two weeks. The movements of the child had not been perceived for two days. Previously these had been well felt. On examination it was found that the os was dilated, admitting one finger. The fetal heart-sounds could not be found. Four days later she fell in labor, and after twenty-four hours of intense pains spontaneously gave birth to a male child, considerably macerated and decomposed, eleven months after the beginning of her pregnancy. The placenta was closely adherent, and entire removal with the hand in the uterus failed.

The Treatment of the Accumulation of Milk in the Breasts of the Newborn.

Opitz (*Berliner klinische Wochenschrift*, June 25, 1894), after considering the frequency of milk accumulation in the breasts of male as well as female infants, speaks of the tendency of nurses to empty them by rubbing and pressure. Such maltreatment of the infantile mammary glands may easily be followed by abscess, which in female infants may greatly interfere with the subsequent function of the glands. The swollen glands are best covered with a non-irritating plaster, as lead plaster, which should be daily renewed. The accumulated milk will disappear in a few weeks.

Two Cases of Cesarean Section on Account of Extreme Scar Stenosis of the Soft Parts.

Kayser (*Zeitschrift für Geburtshilfe und Gynäkologie*, Bd. xxvii) reports two cases of conservative Cesarean section performed in the Giessener Frauen-

klinik. The indication for operation in the two cases was not from narrowing of the pelvis, but extreme stenosis of the vagina through scar tissue and an imperfect atresia of the cervix. The scars were the result of preceding instrumental deliveries. Both patients had had puerperal fever, and had suffered from large vesico-vaginal fistulas, which were later cured by operation. In the first case the vaginal stenosis was of less degree than in the second, and it was attempted to deliver by induced labor. It was impossible, however, by the means used to produce dilatation of the os. Cesarean section was, therefore, resorted to. In the second case this operation was indicated from the first on account of the extreme degree of stenosis. The patient was surprised by a rupture of the membranes at the beginning of the eighth month, and the section was performed at this early period as the only means of effecting her delivery.

In the first case the result was good for mother and child; in the second, both died,—the mother from sepsis.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Observations upon Pernicious Anemia.

Max Perles (*Berliner klinische Wochenschrift*, 1893, No. 40). These observations are based upon the study of the blood of three cases of essential or pernicious anemia. The blood was secured under most careful antiseptic precautions from the end of the finger or from the lobule of the ear, and examined as a hanging drop upon a warm stage of the microscope with the oil immersion lens.

At the edge of the drop where the blood was thin most peculiar mobile organisms. These appeared as elongated ellipsis, very thin and narrow, flexible and strongly refracting. When standing upon the edge they appear linear, about 3 x 1 μ in size. Their form and size were very constant. The movement is irregular, frequently interrupted by pauses. No locomotive organs, such as flagella, could be discovered. All attempts to study the organisms more closely by staining methods or cultivation constantly failed. The observer is of the opinion that the bodies are living organisms, probably protozoa, though there can be no definite judgment upon this subject given as yet. He suggests that in pernicious anemia a poison elaborated by these organisms, possessed of strong hemolytic properties, circulates in the blood.

In addition to the three cases of pernicious anemia upon which these observations were made, a large number of cases of secondary anemias from tuberculosis, tabes, carcinoma, hematemesis, nephritis, as well as chlorosis, were studied. In the cases selected the hemoglobin was not above 30 per cent., but in not a single one could the described organisms be found.

Pernicious Anemia.

Fischel and Adler (*Zeitschrift für Heilkunde*, Bd. xiv, Heft iv, Seite 263) found in a case of pernicious anemia with tedious course a streptococcus resembling in its characters the streptococcus pyogenes. The patient had had an injury to the foot, but it was healed. Later on, increasing weakness and fever brought the patient into the physician's hands. The symptoms corresponded more with those of sepsis than those of pernicious anemia. In the blood a considerable reduction of the red corpuscles. All the physical signs were those of universal anemia.

Cultures of the streptococcus in bouillon were killed and injected into rabbits. Examination of the blood of these animals showed that the circulation of the metabolic products of the streptococci in the blood of the rabbits considerably diminished the number of red corpuscles, so that an animal which before injection had 6 millions, after the injection, *ante-mortem*, had only 1.3 millions. Examination of the animals showed pronounced anemia with iron in the liver. Further experiment showed that if the animal recovered, the number of corpuscles increased, but immediately diminished if the injection was repeated. It appeared as if the metabolic products of the streptococcus had a pernicious effect upon the red blood-corpuscles.

Examination of the Blood in Sepsis.

Canon (*Deutsche medicinische Wochenschrift*, 1893, No. 43) has been for three years engaged in studying the various bacteria to be found in the blood of patients suffering from septic conditions. The examinations were made both *ante-mortem* and *post-mortem*, the blood being taken from the ball of the finger.

In the blood of the cadaver the following were found :

Diphtheria.—Streptococci eleven times.
Staphylococcus aureus once (five negative examinations).
A few diphtheria bacilli and streptococci once.

Scarlatina.—Streptococci twice.

Phthisis.—Streptococci twice.

Septicemia.—Streptococci eight times.
Staphylococcus albus twice.
Staphylococcus aureus six times.

Pneumococci were found once in peritonitis following carcinoma uteri, once in oöphoritis suppurativa following parturition.

Bacillus coli communis was found twice in cases of peritonitis.

Friedländer's bacillus was found once in abscess of the bile-ducts following gall-stone.

In the blood of the living, the following were found :

Staphylococcus aureus.—Twice in *osteomyelitis acuta.*

Streptococci.—Seven times in cases of locus suppuration,—earliest four days before death—once in *scarlatina septica.*

Pneumococci.—Found during each chill in hepatic abscess. A similar organism to Friedländer's bacillus was also found in suppurative meningitis.

In contradistinction to these results, many of the examinations proved negative.

The sweat was carefully examined in two cases of sepsis with negative result.

Amebic Dysentery.

Quincke and Roos (*Berliner klinische Wochenschrift*, 1893, No. 45, p. 1089) observed two cases of dysentery in which the pathogenic character of the ameba was unquestionable. In the first case the ameba appeared identical with those described by Lösch. In the condition of rest they were spherical, 20–25 μ in diameter, sharply contoured, and with a coarsely granular protoplasm. Vacuoles were generally demonstrable in their interiors, as were also foreign bodies and red blood-corpuscles. There were also encysted forms, which were most numerous after the calomel treatment to which the patient was subjected. The encysted forms were distinctly smaller, 10–12 μ in diameter, and showed a very sharp, if not distinctly double contour. Clysters of these ameba-containing stools given to cats brought about a severe dysentery, which caused death in two to three weeks, with ulcerative processes in the colon. When given by the mouth, infection was only caused when the stool contained encysted ameba.

This patient was infected at Palermo, the second at Kiel. The much milder course of the second case, as well as the slightly different morphological characters of the ameba found, caused the suggestion that the ameba belonged to a different variety. The idea was further established by the fact that cats only developed a mild diarrhea when injected with the stools containing these organisms.

The observers suggest for the names of these species, *ameba coli Lösch* (*ameba coli felis*) and *ameba coli mitis*.

Subsequently the stools of twenty-four persons not suffering from dysentery were subjected to examination. In nine of them a few, in three a large number, of similar ameba were found, which were not pathogenic for cats,—*ameba intestini vulgaris*.

A New Method of Discovering Tubercle Bacilli in the Sputum of Consumptives.

Ilkewitsch (*Centralblatt für Bakteriologie und Parasitenkunde*, February 5, 1894, Band xv., Nos. 5–6, p. 162) recommends as the simplest method of examining for the tubercle bacillus spreading the material to be examined upon a glass slide, making a thin and even film by superimposing a second glass slide, separating these, drying, fixing carefully in the direct flame, staining by Ziehl's method, drying and examining with the oil immersion lens, without a cover-glass.

As in many cases the tubercle bacilli exist in the sputum in very small numbers, Ilkewitsch recommends the use of the centrifugal machine for its separation, accomplishing this end as follows: About a half cubic centimetre of sputum is mixed with twenty cubic centimetres of distilled water in a small porcelain dish, eight to twenty drops of a 30-per-cent. solution of potassium hydrate are added, and the mixture which is constantly stirred is warmed until vaporization occurs. After the influence of the heat and potassium hydrate have caused the complete solution of the sputum, a small amount of casein is added and dissolved. A drop or two of the potassium hydrate solution may be necessary; the liquid assumes a milky appearance. The fluid is now poured into a test-tube and acetic acid added, drop by drop, until the first sign of coagulation of the albumen is observed. The liquid is now poured into the cylinder of the centrifugal apparatus and rotated until separation occurs. When the separation is completed the cylinder is opened, a small ball suspended by a thread is lowered upon the collected sediment, and the superimposed fluid poured off. The sediment is treated as above, and it is claimed that tubercle bacilli which exist in exceedingly small numbers can be detected and the diagnosis of incipient cases made easy by the method.

IMMUNITY IN ITS RELATION TO THE FUNCTION OF THE SPLEEN.

RIGHI, J. (*La Rif. Med.*, 1893, pp. 170, 171). This work was undertaken to discover whether despleenized animals can be made immune to disease, and also whether animals which are immune to disease lose their immunity after removal of the organ.

Experiments were made with cholera, typhoid, and tetanus, upon guinea-pigs, mice, and rabbits.

It was found that in cholera and typhoid the removal of the spleen exercises an influence neither upon the prolongation of immunity nor that previously immunized animals lose their resistance when the spleen is removed.

On the contrary, the studies upon tetanus showed that despleenized rabbits attained a higher degree of immunity than normal rabbits, and that the immunity of normal animals can be killed by removal of the organ.

THE IMPORTANCE OF THE SPLEEN IN THE EXPERIMENTAL IMMUNIZATION OF RABBIT AGAINST TETANUS.

TIZZONI and CATTANI (*La Rif. Med.*, 1893, p. 189). These investigators reach the conclusion that the spleen takes no direct part in the process of immunization even when the immunizing substance is a part of the animal body, its formation does not occur in the spleen, or, at least, not in the spleen alone.

BOOK NOTICES.

A TREATISE ON THE SCIENCE AND PRACTICE OF MIDWIFERY. By W. S. PLAYFAIR, M.D., LL.D., F.R.C.P. Sixth American, from the Eighth English, Edition, with Notes and Additions by Robert P. Harris, A.M., M.D. Philadelphia: Lea Bros. & Co.

Dr. Harris, whose international reputation as an obstetrical statistician eminently fitted him for the work that he has undertaken, has unstintedly devoted the fruits of his long and comprehensive experience to the present revision of Dr. Playfair's Midwifery. Through his efforts the enviable good name of the book is maintained, and the work made to conform largely to the latest accepted views of the American profession. Especially is this to be noted in the pages allotted to symphyseotomy, an operation that appears to have embodied within it great possibilities of success. The advance in spelling and the accurate employment of words is recommended to a certain extent, and throughout the volume the term *celiotomy* and the prefix *celio-* have been substituted for *laparotomy* and *laparo-*. Notwithstanding the general admirable character of the book, there are some points of deficiency to which attention should be called. Thus, there exists some confusion in the nomenclature adopted in the subject of the mechanism of labor; for instance, shoulder presentations are designated by the letter S, as

LSA, which might also, and generally does, indicate the first position of the breech; the symbol LDA for the corresponding position of the shoulder, as employed by many obstetricians, would seem to be preferable, and certainly would obviate the ambiguity produced by the employment of the former symbol. In the treatment of puerperal eclampsia no mention whatever is made of the drug veratrum viride, and yet we doubt if many of the recognized obstetricians of the country would care to undertake the management of this startling complication of labor were this truly valuable drug removed from their armamentarium. There has been of late a strong turning towards symphyseotomy as a probable solution for the vexed question of the proper management of complicated face presentations. This suggestion has not been recognized in the present volume. While these are undoubtedly points of defect, it is too much to expect any volume on any medical subject to be absolutely immaculate, and the eminently superior merit of Dr. Harris's revision of the excellent English work must commend it to all progressive obstetrical men. The general make-up of the book, including the type, paper, and illustrations, is of the best.

THE MODERN TREATMENT OF INVALIDS WITH PULMONARY CONSUMPTION IN SOUTHERN CALIFORNIA. By P. C. REMONDINO, M.D.

This valuable little volume is one of the Physician's Leisure Library. It is well written by one who is an enthusiast and who is evidently well acquainted with the region of which he writes. His advice to invalids seeking health is most wise. While he lauds Southern California fully, he does not advise those in advanced conditions to make the long journey. The volume is a valuable one, both for the laity and for physicians.

ESSENTIALS OF ANATOMY. By CHARLES B. NANCREDE, M.D., Professor of Surgery and of Clinical Surgery in the University of Michigan, etc. Fifth Edition. Philadelphia: W. B. Saunders, 1894.

The announcement of the publisher that this book is now in its fifteenth thousand indicates a remarkable demand for this class of literature. If there is any department of medicine which should be more thoroughly mastered than others, it is anatomy. Upon a thorough knowledge of this subject the whole medical superstructure is erected. It is well recognized that no subject can be properly mastered from the various quiz compends and aids which are so common at present. They may, however, be used with advantage in connection with the larger text-books, and for reviewing. The work is arranged in the form of questions and answers. In the present edition a series of osteological plates have been added. As a quiz compend this is a creditable work, and that it is a popular one is abundantly proved by the very large sale which it has enjoyed.

THE NURSE'S DICTIONARY OF MEDICAL TERMS AND NURSING TREATMENT. By HONNOR MORTEN. Second Edition. Philadelphia: W. B. Saunders, 1894.

This modest little work, the author tells us in the preface, "is merely meant to be used at the bedside as a temporary reference book, until there is time to look up fuller works on the different subjects."

A glance through the book reveals a rather unhappy selection of words, in that many common ones are omitted, while far too many rare terms are included. Such words as deliquium animi, deorsum vergens, deradenitis, habena, lienculus, etc., will rarely come to the nurse's attention at the bedside.

Evidences of careless proof-reading are not wanting. We notice: spiral canal for spinal canal, enonymus for euonymus, exophalmos for exophthalmos, foundament for fundament, gastrictasis for gastrectasis, Brumer's glands for Bruner's glands, solens for soleus, trismus mascentium for trismus nascentium, diastalic for diastaltic, irites for iritis, tibula for tibia, etc.

Definitions are frequently incomplete or incorrect. For example: anthracosis is defined as carbuncular disease caused by inspiring particles of coal; antitoxines as injections of serum; debilitants as remedies which reduce excitement; enema as an instrument; eructation as flatulency with extension; fremitus is said to be a roaring sound, and so on.

It seems to us that it would be more profitable for the nurse to wait until time offered "to look up fuller works" rather than depend upon this book even at the bedside.

THE INTERNATIONAL MEDICAL ANNUAL, 1894. E. B. TREAT, New York.

This well-known publication makes its appearance to the public fully able to hold the reputation it has already made. It contains over 6000 references to disease and their remedies. These references are culled from the various periodicals of all nations and from monographs that have been published.

Beside this, which has been the custom in the book, the publishers this year have obtained articles from noted specialists on different subjects, so that the work contains monographs as well as abstracts from journals. The arrangement is the same as usual, alphabetical in order, and the different subjects are found with the greatest amount of ease.

TRANSACTIONS OF THE AMERICAN DERMATOLOGICAL ASSOCIATION. Seventeenth Annual Meeting.

The Transactions comprise papers upon the following interesting subjects: Cosmetics, by Dr. R. B. Morison; A Case of Rhinoscleroma, by Dr. George Thomas Jackson; A Case of Circumscribed Scleroderma (Morphea), by Dr. William Thomas Corlett; A Case of Tuberculosis

of the Skin Simulating Lupus Erythematosus and Erythematoid Lupus Vulgaris, by Dr. William A. Hardaway; Lupus Erythematosus as an Imitator of Various Forms of Dermatitis, by Dr. H. Radcliffe-Crocker; The Treatment of Itching, by Dr Edward Bennet Bronson; Angiokeratome, by Dr. Joseph Zeisler; A Contribution to the Pathology of Acne Varioliformis Hebræ, by Dr. John Addison Fordyce; General Discussion on Pityriasis Rosea; General Discussion on Pemphigus; Report of the Statistical Committee.

The various subjects have been well presented, and, together with the discussions, form a valuable addition to dermatological literature.

Syllabus of the Obstetrical Lectures in the Medical Department of the University of Pennsylvania. By Richard C. Norris, A.M., M.D., Demonstrator of Obstetrics in the University of Pennsylvania, etc. Third Edition. Philadelphia: W. B. Saunders, 1894.

The hope indulged by the author in preparing the first edition of this work that it might prove of service to medical students has been realized by the exhaustion already of two editions and by the appearance of the third. The work represents a systematic course in obstetrics, condensed as far as possible without detracting from its usefulness. It is not intended to replace regular attendance upon the lectures, but is to be used in conjunction with them to obviate the necessity of note-taking. The present edition has been brought up to date by including the additions which have appeared during the last two years. The book is interleaved to provide for additional notes. Every student in medicine will find it a useful companion.

A Manual of Instruction in the Principles of Prompt Aid to the Injured. By Alvah H. Doty, M.D., Major and Surgeon, Ninth Regiment, N. G. S. N. Y. Second Edition. New York: D. Appleton & Co., 1894.

In the present edition the author has made such additions as seem to him desirable to make the book conform to the present knowledge of the different subjects of which it treats. A chapter on hygiene has been added, and also the recently-adopted drill regulations of the ambulance corps of the U. S. Army. The first portion of the book is devoted to a brief consideration of the gross anatomy of the body to enable the reader to understand and intelligently apply the directions which follow.

Like other works of this class, the directions given are those which are to be instituted while awaiting the arrival of the physician. In this work these have been selected with good judgment, and the directions given may be followed with the feeling that they are the best that the present state of our knowledge can suggest. We would object, however, to the statement that "medicine is of very little use in tetanus." It is true that in the severe acute form of tetanus a fatal result may be

expected, but it seems that the advice mentioned would tend to lessen effort, and might therefore unfavorably influence an otherwise hopeful case.

ESSENTIALS OF PHYSICS. Prepared especially for students of medicine. By FREDERICK J. BROCKWAY, M.D. Second Edition. Philadelphia: W. B. Saunders, 1894.

The plan of this book follows the others of this series in being arranged in the form of questions and answers. The object of the author has been to present the student with a work of small size which should contain that which it is necessary that he should know. The subject is divided into five parts, which treat respectively of matter and its properties,—heat, light, sound, and magnetism and electricity. Objection has already been made to this "question and answer" form of these works, and, we think, with good reason. It seems to us preferable to simply make the statement of fact rather than incumber the text with questions. The author has condensed a large amount of information within a small compass, and the book will take a creditable position in its class.

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CONTENTS OF VOLUME VI.

ORIGINAL ARTICLES.

ALLEN, HARRISON: The Etiology of Fracture of the Lower End of the Radius 145

The Objects of the Wistar Institute 586

ALLYN, HERMAN B.: The Reciprocal Relations of Mitral Stenosis and Pregnancy 435

ASHMEAD, ALBERT S.: A Study in Scarlet Fever; Apparent Transmission of Immunity by the Inoculation of Human Blood-Serum 31

Synopsis of a Chinese Secret Manuscript on Syphilis; Reprinted in Japan, A.D. 1724. Originally Written by Chin-Shi-Sci, who Lived under the Dynasty of Ming (B.C. 1368–1644) 530

BALL, M. V.: Tuberculosis in Prisons 841

BURR, CHARLES W.: A Contribution to the Pathology of Friedreich's Ataxia 598

CARPENTER, J. G.: Relation between Diseases of the Upper Air-Passage and Diseases of the Eye 109

CARTER, WILLIAM S.: The Globulicidal Action of Blood-Serum 170

CATES, BEN. B.: Some Experiments upon the Primæ Viæ with Report of a New Method in Enterorrhaphy: Its Technique and Results 682

DA COSTA, J. M.: Cases of Influenza Simulating Typhoid Fever and Cerebro-Spinal Meningitis . . . 289

Lithemia 497

DALE, J. V.: Opium as an Hypnotic in Old Age 321

DAVIS, G. G.: Surgical Tuberculosis 937

DEAVER, JOHN B., WILLIAM PEPPER, and J. H. MUSSER: A Case of Purulent Pericarditis; Paracentesis of the Pericardium 297

DILLER THEODORE: The Non-Operative Treatment of Brain Tumors 753

DUHRING, LOUIS A.: Valedictory Address to the Graduating Classes in Medicine, Dentistry, and Veterinary Medicine of the University of Pennsylvania . . 729

FLICK, LAWRENCE P.: The Early Recognition of Tuberculosis . 101

FURNESS, HORACE HOWARD: Address at the Commencement Exercises of the University of Pennsylvania. Also Remarks Made at the Unveiling of the Model of the Statue of the Retiring Provost 737

FUSSELL, M. HOWARD: Tetany . . 229

FOWLER, CHARLES C.: The Relation of Pelvic Diseases and Psychical Disturbances in Women 460

GOODELL, WILLIAM: The Conservative Treatment of the Female Pelvic Organs 649

The Great Medical Error of the Day 217

HAMANN, C. A.: Notes on some Cases of Congenital Malformations of the Face and Ears. With an Additional Note by Howard S. Straight 759

HIRST, BARTON COOKE: Two Cesarean Sections and Three Symphyseotomies; A Year's Work in the Surgical Treatment of Insuperably Obstructed Labor 293
HOW, W. STORER: Cystic Evacuation and Irrigation 370
HUGHES, WILLIAM E.: Infection by Tuberculosis through the Respiratory Apparatus 826
JACKSON, EDWARD: Foreign Bodies Within the Eyeball 28
KENNEDY, CATHERINE M., and CHARLES F. J. KENNEDY: Cystic Degeneration of the Chorionic Villi 677
KENNEDY, CHARLES F. J., and CATHERINE M. KENNEDY: Cystic Degeneration of the Chorionic Villi 677
LLOYD, JAMES HENDRIE: Pachymeningitis and Myelitis from Pott's Disease, and Septic Neuritis of the Cauda Equina from a Bed-Sore over the Sacrum . . 148
MARTIN, EDWARD: Infection by Tuberculosis through the Genito-Urinary Tract 860
Prevesical Inflammation 363
MASSEY, G. BETTON: Electricity in the Treatment of Chronic Prostatitis, and Other Conditions Underlying Impotence in Men 366
MCFARLAND, JOSEPH: Failure of an Attempt to Modify the Color of Bacillus Prodigiosus by Colored Light 675
Is the Tubercle Bacillus Killed by Boiling? 817
MCNABB, CHARLES P.: Raynaud's Disease 822
MUSSER, J. H., WILLIAM PEPPER, and JOHN B. DEAVER: A Case of Purulent Pericarditis; Paracentesis of the Pericardium . . 297
NORRIS, W. F., and JAMES WALLACE: A Contribution to the Anatomy of the Human Retina, with Especial Consideration of the Terminal Loops of the Rods and Cones 353
OLIVER, CHARLES A.: Clinical History of a Case of Successful Extraction of a Piece of Steel from an Iris in which Purulent Inflammation had been Established; with Prompt Subsidence of the Inflammatory Reaction and Restoration of Full Vision 520
Clinical History of a Case of Spindle-Celled Sarcoma of the Chorioid, with a Study of the Microscopic Condition of the Growth 156
The Relation of Ophthalmoscopic Findings to Diseases of the Cerebral Cortex as Illustrated by a Series of Observations upon nearly Two Hundred Cases of Epilepsy and General Paralysis of the Insane 372
OSLER, WILLIAM: The Leaven of Science 571
OTT, ISAAC: Temperature and Polypnea 417
PACKARD, FREDERICK A.: On the Infection of the Human Body by Tuberculosis through the Alimentary Tract 831
The Uses of Venesection 511
PHELPS, A. M.: What shall we do for Hip-Joint Disease? 358
PENROSE, CHARLES B.: A Case of Abdominal Hysterectomy in which the Ureter was Resected and Implanted into the Bladder 454
PEPPER, WILLIAM: Higher Medical Education, the True Interest of the Public and of the Profession 69
Introductory Remarks at the Opening of the Wistar Institute of Anatomy and Biology . 569
President's Address, First Pan-American Medical Congress . 1
J. H. MUSSER, and JOHN B. DEAVER: A Case of Purulent Pericarditis; Paracentesis of the Pericardium 279

RANDALL, B. ALEXANDER: A Fatal Case of Meningitis and Brain Abscess of Otitic Origin . . . 593
REICHERT, EDWARD T.: The Effects of Lesions of Certain Parts of the Brain upon the Heat Processes 303
RISLEY, S. D.: Hemorrhagic Glaucoma: Its Nature, Prognosis, and Treatment 85
SHEPHERD, I. M.: Alcoholic Paralysis with Fatal Hematemesis 456
SHIMER, WILLIAM S.: Mastoid Disease Following Epidemic "La Grippe" 763
SINKLER, WHARTON: A Case of Tumor of the Optic Thalamus 21
STOUT, GEORGE C.: Otomycosis . 522
STRAIGHT, HOWARD S.: Additional Note on the Cases of Congenital Malformation of the Face and Ears, Reported by C. A. Hamann 759
TOMLINSON, H. A.: The Inadequacy of the Morbid Changes Found Post-Mortem to Explain the Manifestations of Insanity . . 657
WALLACE, JAMES: Gonorrheal Ophthalmia 235
The Microscopical Anatomy of the Crystalline Lens 797
The Physical and Physiological Basis of Color 504
And W. F. NORRIS: A Contribution to the Anatomy of the Human Retina, with Especial Consideration of the Terminal Loops of the Rods and Cones 353
WETHERELL, H. G.: Observations on Cases of Movable Kidney . 811
WILLARD, DE FOREST: Correction of Rachitic Deformities and of Deformities Following Infantile and Spastic Paralysis . 673
Operative Treatment of Knee-Joint Disease 162
WOOD, GEORGE B.: The Elimination of Ether and its Relation to the Kidney 802
WOOD, H. C.: On Potassium Permanganate as an Antidote to Vegetable Poisons 747
ZIMMERMAN, M. W.: A Case of Myxosarcoma of the Right Frontal Lobe with Optic Neuritis; Autopsy 528

MEMORANDA.

ASHMEAD, ALBERT S.: A Source of Infection on American Prairies 250
FINLEY, ROBERT P.: Potassium Permanganate in Morphia-Poisoning 606
KEISER, ELMER E.: A Case of Torsion of the Neck in Vertex Presentation 467
LESSING, FERDINAND: An Interesting Case in Obstetrics . . . 469
LOVELAND, BRADFORD C.: Note on a Case of Chorea Treated by Quinine 605
MASSEY, FRANK: Symmetrical Hemorrhagic Infarct of Both Lungs 186
NORTON, H. G.: Diabetes in Children 536
OSLER, WILLIAM: Case of Pericarditis Treated by Incision and Drainage 248
Parotitis in Pneumonia 245
PENROSE, CHARLES B.: Congenital Absence of the Vaginal Cervix 185
Gravid Fallopian Tube Removed by Celiotomy before Rupture 324
Two Cases of Calcification of the Uterus 465
POTTS, CHARLES S.: A Case of Multiple Neuritis Caused by Arsenic Used in the Treatment of Chorea 469
A Report of Two Cases of Procursive Epilepsy 696
RAYMOND, THOMAS U.: Purpura Complicating Vaccination . . 535
REED, HOWARD: An Improved Two-Way Catheter 607
STEWART, HENRY: Case of Compound Fracture of the Skull . 117

WAGNER, E. C.: An Interesting Degree of Hyperpyrexia in a Pneumonia Patient 471
Fracture of Both Scapulæ in an Infant 470

CLINICAL DEPARTMENT.

ASHHURST, JOHN, JR., Service of: University Hospital . 327, 473, 609
HIRST, BARTON COOKE, Service of: University Hospital . . . 385
HOLLOPETER, W. C., Service of: Methodist Episcopal Hospital 537
NOBLE, CHARLES P., Service of: Kensington Hospital for Women 34, 251
WHITE, J. WILLIAM, Service of: German Hospital 376

EDITORIAL.

A Matter of Interest to the Alumni of the Medical Department of the University of Pennsylvania 121
A National Department of Public Health 699
Dr. Pepper's Resignation 612
Duboisine 329
Hydrastinine Hydrochloras, U. S. P., 1890 613
Increased Clinical Facilities at the University 847
Medical Inconsistencies 188
Neglect of Puerperal Patients . . 39
Notes on the United States Pharmacopeia, 1890 Revision, No. 1 . 255
Piperazine 771
The Seventh Decennial Revision of the Pharmacopeia 120
Shall Tinctures be Prepared from Fluid Extracts? 37
Specialism in Medicine 772
The Annual Commencement of the Medical Department 701
The Cause of Death in Cases of Rupture of the Bladder . . 848
The D. Hayes Agnew Memorial . 544
The Facilities of the Pathological Laboratory of the Gynecological Department of the University of Pennsylvania Extended to the Profession 389
The Number of Students in the Medical Department of the University of Pennsylvania . 388
The Prevention of Tuberculosis . . 541
The Treatment of Traumatic Peritonitis without Evidence of External Injury 386
The Wistar Institute of Anatomy and Biology 615
Weak Heart 476

ALUMNI NOTES.

Appointments, Necrology, 41, 118, 189, 253, 331, 474, 539, 610, 698, 770, 845

BOOK NOTICES.

ALLEN, HARTE, HARLAN, AND VAN HARLINGEN: A Hand-Book of Local Therapeutics . 214
An American Text-Book of Gynecology, Medical and Surgical, for Practitioners and Students. Edited by J. M. Baldy 413
ANDERSON, WINSLOW: Mineral Springs and Health Resorts of California 281
ASHHURST, JOHN, JR.: The Principles and Practice of Surgery . 280
BARTHOLOW, ROBERTS: Cholera: Its Causes, Symptoms, Pathology, and Treatment 416
A Practical Treatise on Materia Medica and Therapeutics . . . 566
BROCKWAY, FREDERICK J.: Essentials of Physics 876
BERRY, GEORGE A.: Diseases of the Eye. A Practical Treatise for Students of Ophthalmology 64
BOUCHARD, CHARLES: Lectures on Auto-Intoxication in Disease, or Self-Poisoning of the Individual 728
BULKLEY, L. DUNCAN: Syphilis in the Innocent 795
BURNETT, CHARLES H.: System of Diseases of the Ear, Nose, and Throat 283
BUSHONG, CHARLES H.: Modern Gynecology 67
CHAPMAN, HENRY C.: A Manual of Medical Jurisprudence and Toxicology 216

CONNERS, W. F. : Differential Diagnosis of Common Diseases of the Eyes 567
COTTERELL, EDWARD : Syphilis : Its Treatment by Intra-Muscular Injections of Soluble Mercurial Salts 280
DAVIS, AUBREY J., and Allen J. Smith : Naphey's Modern Therapeutics 65
Disease of Inebriety from Alcohol, Opium, and other Narcotic Drugs, The ; its Etiology, Pathology, Treatment, and Medico-Legal Relations 216
DOTY, ALVAH H. : A Manual of Instruction in the Principles of the Prompt Aid to the Injured 875
DUNGLISON, ROBLEY : A Dictionary of Medical Science 412
FIELD, GEORGE P. : A Manual of Diseases of the Ear 285
FLÜCKIGER, F. A. : Reactions . . 214
GARRIGUES, HENRY J. : A Text-Book of the Diseases of Women 726
GOULD, GEORGE M. : An Illustrated Dictionary of Medicine, Biology, and Allied Sciences . . . 724
GOWERS, W. R. : A Manual of Diseases of the Nervous System . 648
GRAY, HENRY : Anatomy ; Descriptive and Surgical 414
HARLAN, Allen, Harte, and Van Harlingen : A Hand-Book of Local Therapeutics 214
HARTE, Allen, Harlan, and Van Harlingen : A Hand-Book of Local Therapeutics 214
HIRT, LUDWIG : The Diseases of the Nervous System ; A Text-Book for Physicians and Surgeons 66
HOLDEN, WARD A. : An Outline of the Embryology of the Eye . 794
HORNE, JOHN FLETCHER : Trephining in its Ancient and Modern Aspects 496
HYDE, J. NEVINS : A Practical Treatise on Diseases of the Skin 351
International Clinics 144
International Medical Annual and Practitioner's Index, The 215, 874
JACKSON, GEORGE THOMAS : A Practical Treatise on the Hair and Scalp 795
JEWETT, CHARLES : Outlines of Obstetrics 568
KELSEY, CHARLES B. : Diseases of the Rectum and Anus, their Pathology, Diagnosis, and Treatment 67
KIRCHHOFF, THEODORE : Hand-Book of Insanity for Practitioners and Students 568
LEONARD'S Physicians' Pocket Day-Book 287
LOOMIS, ALFRED M. : Lessons in Physical Diagnosis 282
LOUMEAU, DR. E. : Chirurgie des Voies Urinaires 413
MARTIN, EDWARD : Essentials of Minor Surgery, Bandaging, and Venereal Diseases 286
Medical News Visiting List, The, 1894 281
MORRIS, HENRY : Essentials of Practice of Medicine 567
MORRIS, MALCOLM : Diseases of the Skin 415
MORROW, PRINCE A. : A System of Genito-Urinary Diseases, Syphilology, and Dermatology 351
MORTON, HONNOR C. : The Nurse's Dictionary of Medical Terms and Nursing Treatment . . . 874
MUSSER, JOHN H. : A Practical Treatise on Medical Diagnosis for Students and Physicians . 410
NANCREDE, CHARLES B. : Essentials of Anatomy, ... 873
NORRIS, RICHARD C. : Syllabus of the Obstetrical Lectures in the University of Pennsylvania . 875
NORRIS, WILLIAM F., and Charles A. Oliver : A Text-Book of Ophthalmology 212
OLIVER, CHARLES A., and William F. Norris : A Text-Book of Ophthalmology 212

PARSONS, J. INGLIS: Healing Rodent Cancer by Electricity . . 565
PEPPER, WILLIAM: A Text-Book of the Theory and Practice of Medicine by American Teachers 645
PIERSOL, GEORGE A.: Normal Histology 285
PLAYFAIR, W. S.: A Treatise on the Science and Practice of Midwifery. With Notes and Additions by ROBERT P. HARRIS, A.M., M.D. 872
Proceedings of the Philadelphia County Medical Society . . . 143
RANSOM, CHARLES C.: Diseases of the Skin 143
REMINGTON, JOSEPH P., Horatio C. Wood, and Samuel P. Sadtler: Dispensatory of the United States, The 411
REMONDINO, P. C.: The Modern Treatment of Invalids with Pulmonary Consumption in Southern California 873
SADTLER, SAMUEL P., Horatio C. Wood, and Joseph P. Remington: Dispensatory of the United States, The 411
SAJOUS, CHARLES E.: Annual of the Universal Medical Sciences 215
SCHOFIELD, ALFRED T.: Elementary Physiology for Students . 144
SEILER, CARL: Hand-Book of the Diagnosis and Treatment of Diseases of the Throat, Nose, and Naso-Pharynx 282
SENN, N.: Syllabus of Lectures on the Practice of Surgery . . . 414
SIMON, W.: A Manual of Chemistry: A Text-Book Especially Adapted for Students of Medicine and Pharmacy 65
SMITH, ALLEN J., and Aubrey J. Davis: Naphey's Modern Therapeutics 65
STARR, LOUIS: An American Text-Book of the Diseases of Children, by American Teachers . 572
STARR, M. ALLEN: Brain Surgery 63
STEVENS, A. A.: A Manual of Therapeutics 647
SUTTON, J. BLAND: Tumors, Innocent and Malignant 656
The Year-Book of Treatment for 1894 567
Transactions of the American Dermatological Association . . . 874
Transactions of the American Orthopedic Association 286
TYSON, JAMES: Manual of Physical Diagnosis for the Use of Students and Physicians 142
VAN HARLINGEN, Allen, Harte, and Harlan: A Hand-Book of Local Therapeutics 214
VIERORDT, OSWALD: A Clinical Text-Book of Medical Diagnosis for Physicians and Students 566
WHARTON, HENRY R.: Minor Surgery and Bandaging 281
WHITTAKER, JAMES T.: The Theory and Practice of Medicine . 287
WOOD, HORATIO C., Joseph P. Remington, and Samuel P. Sadtler: Dispensatory of the United States, The, ... 411
Year-Book of Treatment, The . . 143
YEO, J. BURNEY: A Manual of Medical Treatment or Clinical Therapeutics 284

MEDICAL PROGRESS.

Dermatology 61, 275, 494, 728
Gynecology . 57, 135, 205, 268, 343, 402, 491, 558, 630, 715, 787, 860
Medicine . . 44, 122, 192, 257, 332, 390, 479, 545, 617, 702, 774, 850
Obstetrics . . 55, 133, 203, 266, 341, 400, 489, 557, 627, 712, 785, 865
Pathology . 59, 138, 208, 274, 347, 405, 493, 561, 633, 710, 791, 869
Surgery 48, 126, 195, 260, 335, 394, 482, 549, 620, 705, 776, 853
Therapeutics 52, 130, 200, 263, 338, 398, 485, 552, 624, 709, 781, 856

MISCELLANEOUS.

The Out-Door Visiting Department of the Hospital of the University of Pennsylvania 140
Tumor of the Optic Thalamus: Correction 142

The Early Recognition of Tuberculosis: Correction 211
Dr. Hunt's Resignation from the Pennsylvania Hospital 278
Dr. James Tyson Elected a Visiting Physician to the Philadelphia Hospital 279
Necrology 279
Special Lectures in the Medical Department of the University 350
The Samuel D. Gross Prize 407
Alvarenga Prize of the College of Physicians of Philadelphia . . 408
Lectures by Dr. Da Costa 409
Examinations for Positions on the Medical Corps of the United States Army 409
Physicians of the United States . 534
For the Dysphagia of Laryngeal Tuberculosis 538
Red Light in Small-Pox 540
Mutter Lectureship of the College of Physicians 563
The Congress of American Physicians and Surgeons 564
Opening of the Wistar Institute of Anatomy 564
John Harrison Laboratory, The . . 564
Death of Dr. Edouard Brown-Séquard 564
Examination of Gynecological Specimens 565
Nitroglycerin in Vomiting 611
Local Application for Pruritus . . 616
Hydrocele in the Female 616
Resignation of Dr. Pepper as Provost of the University of Pennsylvania 635
Bronze Statue of Dr. Pepper to be Presented to the University . 640
Meeting of the Cleveland Medical Society 641
Pharmaceutical Era, The 642
Charles C. Harrison chosen Acting Provost 642
Annual Meeting of the American Dermatological Association . 642
Remarkable Case of Tuberculous Peritonitis in a Woman . . . 674
Thyroid Extract in Psoriasis . . . 681
Chlorobrom 698
An Omission 701
The Commencement Exercises of the Medical Department of the University of Pennsylvania . 722
Professor George Fullerton elected Vice-Provost of the University of Pennsylvania 724
Intubation of the Larynx . . . 769
Annual Meeting of the American Academy of Medicine 770
Number of Students in German Universities 770
Twenty-fourth Annual Convention of the Colorado State Medical Society 794
Erratum 794

CORRESPONDENCE.

ASHMEAD: Transmission of Immunity from Scarlet Fever by the Inoculation of Human Blood-Serum 211
HAMILTON: Parotitis Following Pneumonia 350

INDEX TO VOLUME VI.

Abdominal Cavity, Experimental Examination as Regards the Effect of Compresses and Sponges left in the 335
Abortion, Concerning the Treatment of 557
Abortions and Premature Labors, Concerning the Etiology and Treatment of 203
Abscess, Iliac, Consecutive to Prostatic Disease 199
Retropharyngeal, Treatment of 126
Subdiaphragmatic, a Case of . 482
Acne Vulgaris, Electrolysis in . . 720
Acroparesthesia, Treatment of . . 774
Address at the Commencement Exercises of the University of Pennsylvania; also Remarks made at the Unveiling of the Model of a Statue of the Retiring Provost 737
Valedictory 729
Adnexa Operations, the Indications, Technique, and Results of 268
Agnew Memorial, The D. Hayes . 544
Air-Passage, Upper, Relation between Diseases of, and Diseases of the Eye 109
Air-Passages, Surgery of, in Children 195
Alcoholism, Strychnine Nitrate in 783
Allen, Harrison, Etiology of Fracture of the Lower End of the Radius 145
The Objects of the Wistar Institute 586
Allyn, Herman B.: The Reciprocal Relations of Mitral Stenosis and Pregnancy 435
Alumni Association of the Medical Department of the University of Pennsylvania, Annual Reunion of 610
Alumni Association, A Matter of Interest to the 121
Notes, 41, 118, 189, 253, 331, 474, 539, 610, 698, 770, 845
Western Association of . . . 118
Alumnol 720
Ameba, The Discovery of, in Liver Abscess, Dysentery, and Nosocomial Gangrene 634
Amebic Dysentery 871
Observations and Experiments upon 633
American Academy of Medicine, Annual Meeting of the . . . 770
Dermatological Association, Annual Meeting of the . . . 642
Physicians and Surgeons, Congress of 564
Amputation, Bloodless, at the Hip-Joint, by an Old Method 708
Amylene Hydrate, Physiological Action of 710
Anemia, Iron Oxalate in 781
in Children 332
Acute, Saline Injections in . . 626
Pernicious 870
Bone-Marrow in 635
Observations upon 869
Aneurism, Cervical, Thoracic, and Abdominal, Surgical Treatment of 261
Anthrax in Rats 561
Aphonia, Hysterical, Treatment of 334
Appendicitis 393, 397, 551
Appendix Vermiformis, Case of Removal of, between Attacks of Relapsing Inflammation 199
Ashmead, Albert S.: A Source of Infection on American Prairies 250
A Study in Scarlet Fever . . . 31

Ashmead: Synopsis of a Chinese Secret Manuscript on Syphilis . . 530

Bacillus Prodigiosus, Failure of an Attempt to Modify the Color of, by Colored Light 675
Pyocyaneus, and Green Pus . . 862
Bacteria, Intestinal, Contributions to the Study of 59
Studies of Chromogenic . . . 634
The Preparation of Microtome-Sections of Cultures of Living, without Hardening . . 793
Ball, M. V.: Tuberculosis in Prisons 841
Bile-Ducts, Two Cases of Suppuration of the 792
Birth of a Child Weighing Fourteen Pounds, the Late 268
Bladder, Foreign Bodies in, Various Methods for Extracting . . 337
Hernia of, Complicating a Femoral Strangulated Hernia 261
Malignant Disease of, Occurrence of Organism Resembling the Plasmodium Malariæ in a Case of 139
Rupture of, Cause of Death after 848
Tamponning the, after the Hypogastric Operation . . . 51
Tamponning the, and Allowing Forceps to Remain in Suprapubic Cystotomy 51
Tumors of the, The Prognosis and Treatment of 50
Operations, Symphyseotomy in 128
and Urethra, Ichthyol in Catarrhal Affections of the . . . 627
Blennorrhea, Urogenital, in Little Girls 635
Blood, Effect of Calcium Chloride on the 132
Examination of, in Sepsis . . 870
Leucocytes and Coagulation of the 209
Remarks on Methods of Increasing and Diminishing the Coagulability of the, with Especial Reference to their Therapeutic employment . . 858
Blood-Serum, The Globulicidal Action of 170
Variations in the Toxicity of, in Cutaneous Affections 61
Bones, Cysts of 49
Bowel, A Simple Method of Resection of the 129
Brain, The Effects of Lesions of Certain Parts of, upon the Heat Processes 303
Pressure, Experimental Studies on 49
Tumors, The Non-Operative Treatment of 753
Breast, Cancer of the, and Subacute Mastitis 128
Bromides and Iodides, Eruptions from 546
Burr, Charles W.: A Contribution to the Pathology of Friedreich's Ataxia 598

Calcium Chloride as a Hemostatic 201
Cancer, New Researches upon the Etiology of 792
The Nature of, and General Classification of Cancerous Diseases 139
Tissue, Fresh, The Implantation of, in the Rabbit's Brain 718
Cancerous Tumors, Parasitic Protozoa in 60
Carcinoma, The Aniline Treatment of 484
The Cellular Inclosures of . . 792
The Inoculability of 793
Carcinomatous Diseases, The Excretion of Chlorides in 493
Cardiac Failure, Treatment of . . 545
Carpenter, J. G.: Relation between Diseases of the Upper Air-Passage and Diseases of the Eye . . 109
Carter, William S.: The Globulicidal Action of Blood-Serum . . 170
Cates, Ben. B.: Some Experiments upon the Primæ Viæ, with Report of a New Method in Enterorrhaphy; its Technique and Results 682
Catheter, An Improved Two-Way . 607

Cervix Uteri, A Modified Saddle-Form Amputation of the 343
Cancer of, Hysterectomy for, by Combined Abdominal and Vaginal Dissection 403
Tuberculosis of the . . . 632
Cesarean Section, Concerning . . 867
Two Cases of, on Account of Extreme Scar Stenosis of the Soft Parts . 868
Cesarean Sections, Two, and Three Symphyseotomies; A Year's Work in the Surgical Treatment of Insuperably Obstructed Labor 293
Chancre of the Eyelid, Two Cases of 856
Childbed, Sporadic Scarlatina in . 268
Chloralose 266, 398
Physiological Action of . . . 856
Chlorobrom 698
Chloroform, On Some Fatal After-Effects of, on Children . . . 706
Narcosis, The Action of Electricity on the Pneumogastric; Is it of Value in 552
Chloroma and its Relation to Leukemia 124
Cholera Epidemic, The Last Lessons Learned from 547
Germs, The Demonstration of, in Drinking-Water 59
Chorea Treated by Quinine, Note on a Case of 605
Chorionic Villi, Cystic Degeneration of the 677
Circulation and Respiration, The Action of Chloroform on the . . 265
Clavicle, Osteo-Chondroma of; Excision; Recovery 609

CLINICAL DEPARTMENT.

Ashhurst, John, Jr., Service of: University Hospital . . 327, 473, 609
Hirst, Barton Cooke, Service of: University Hospital 385
Hollopeter, W. C., Service of: Methodist Episcopal Hospital . 537
Noble, Charles P., Service of: Kensington Hospital for Women . 34, 251
White, J. William, Service of: German Hospital 376
Cocaine, Death from 779
The Hypodermic Use of . . . 554
Coccidial Tumors from the Small Intestine of the Sheep 59
Coccidium and Sporocyst Found in Myxocarcinoma, Concerning a . 406
Codeine, The Uses of 554
Colitis, Membranous, Treatment of 782
Color, The Physical and Physiological Basis of 504
Colorado State Medical Society, Twenty-fourth Annual Convention of the 794
Commencement Exercises of the Medical Department of the University of Pennsylvania, The 701, 722
Cone, S. M.: A Case of Typhoid Fever Notable for the Slow Pulse and Subnormal Temperature at Convalescence 537
Congenital Malformation of the Face and Ears, Notes on some Cases of 759
Consulting Physicians Elected . . 846
Correction: The Early Recognition of Tuberculosis 211
Cranio-Cerebral Topography . . . 48
Cretinism, Sporadic in America . . 257
Crystalline Lens, The Microscopical Anatomy of the 797
Culture Media, The Use of Various Sputa as 718
Medium, A Non-Albuminous, for Pathogenic Bacteria . . 348
Cystic Evacuation and Irrigation . 370
Cystotomy, Suprapubic 394

Da Costa, J. M.: Cases of Influenza Simulating Typhoid Fever and Cerebro-Spinal Meningitis 289
Lectures by 409
Lithemia 497
Dale, J. Y.: Opium as an Hypnotic in Old Age 321
Davis, G. G.: Surgical Tuberculosis 837
Deaver, John B., William Pepper, and J. H. Musser: A Case of Purulent Pericarditis; Paracentesis of the Pericardium 297
Delivery, Unconscious 135

Dermoid Cyst of the Uterus, A Mural 403
Diabetes, Diet in Severe Cases of . 194
Disturbances of Sensibility in . 258
During Second Year of Life . 547
in Children 536
Mellitus and Cirrhosis of the Liver 546
Pancreatic Juice in 487
The Significance of Acetonuria in the Prognosis of 259
Diabétide on the Genitals 547
Diaphtherin 339
Diaphyses, Percussion and Auscultation of the Long Bones as a Means of Diagnosing Fractures of the 335
Diarrhea, Salacetol in 264
Summer, of Children, Enteroclysis in the 52
Digitalis 45
Diller, Theodore: The Non-Operative Treatment of Brain Tumors 753
Diphtheria, Chlorine Water in . . 781
Inoculation of Cows with Bacillus of 407
Papayotin and Carbolic Acid in 193
Sublimed Sulpher as a Local Application in 552
Simulation of 481
The Bacteriology of 332
Diseases of Women, The Causation of the 272
Dislocation, Cervical, Reduction of 707
Diuretin, The Diuretic Action of . 850
Dog, Tuberculosis in 210
and Cat, Tuberculosis in the . 274
Dormitories, The University . . . 539
Dropsy, Cardiac, Theobromine in . 485
Duboisin 201, 329
Ductus Botalli, Patulous 705
Duhring, Louis A., Valedictory Address to the Graduating Classes in Medicine, Dentistry, and Veterinary Medicine of the University of Pennsylvania 729
Dyspepsia, Fermentative, Subgallate of Bismuth in 399
Eclampsia, The Treatment of . . . 714
Bacillus, and its Relation to Puerperal Eclampsia 405
Eclampsia, Puerperal 47, 867
Eczema, Benzoin in 720
Tuberculous 276
Vesicular, The Internal Treatment of 494

EDITORIAL.

A Matter of Interest to the Alumni of the Medical Department of the University of Pennsylvania . 121
A National Department of Public Health 699
Dr. Pepper's Resignation 612
Duboisin 329
Hydrastinine Hydrochloras, U. S. P., 1890 613
Increased Clinical Facilities at the University 847
Medical Inconsistencies 188
Neglect of Puerperal Patients . . 39
Notes on the United States Pharmacopeia, 1890, Revision No. 1 . . 255
Piperazine 771
The Seventh Decennial Revision of the Pharmacopeia 120
Shall Tinctures be Prepared from Fluid Extracts? 37
Specialism in Medicine 772
The Annual Commencement of the Medical Department 701
The Cause of Death in Cases of Rupture of the Bladder 848
The D. Hayes Agnew Memorial . 544
The Facilities of the Pathological Laboratory of the Gynecological Department of the University of Pennsylvania Extended to the Profession 389
The Number of Students in the Medical Department of the University of Pennsylvania 388
The Prevention of Tuberculosis . 541
The Treatment of Traumatic Peritonitis without Evidence of External Injury 386
The Wistar Institute of Anatomy and Biology 615
Weak Heart 476

Electrical Welding, Injury to the Eyes from Watching 125

Embolism of the Pulmonary Artery During Pregnancy, Labor, and the Puerperal State, Concerning the Etiology of 785
Emmenagogue, Senecio Vulgaris as an 781
Empyema, Removal of Cicatricial Tissues Resulting from an old 778
On the Treatment of . . 127, 779
Endocarditis, Gonorrheal 259
Enterorrhaphy, Its Technique and Results, Some Experiments upon the Primæ Viæ with Report of a New Method in 682
Its Treatment, Technique, and Present Status 262
Epilepsy, Strontium Bromide in the Treatment of Chronic . . . 53
Treatment of 399
Procursive, A Report of Two Cases of 696
Erratum 794
The Early Recognition of Tuberculosis 211
Erysipelas, Cold Baths in 548
Erythème Induré de Scrofuleux of Bazin 277
Erythromelalgia 546
Esophagus, Gastrostomy in Stricture of the 778
Stricture of, A New Dilator for 192
Ether, The Elimination of, and its Relation to the Kidney 802
Europhen 857
Eyeball, Foreign Bodies Within the, ... 28
Eyes, Injury to, from Watching Electric Welding 125
Exophthalmic Goitre, The Treatment of 200
Fat-Cell, The 561
Febrile Diseases, The External Application of Guaiacol in . . . 488
Female Pelvic Organs, The Conservative Treatment of the 649
Ferratin 782
Fetal Development, Cessation of, Following Traumatism 714
Fetus, Monstrous 401
With an Eruption of Measles . 557
Fever, Ganglionic 125
Friedreich's Ataxia, A Contribution to the Pathology of 598
Fibroid Tumors, Surgical Treatment of 57
Filariæ Sanguinis Hominis, The . 211
Finley, Robert P.: Potassium Permanganate in Morphia-Poisoning 606
Flat-Foot, Treatment of 396
Flick, Lawrence F.: The Early Recognition of Tuberculosis . . 101
Food for Infants 195
Formaldehyde 202
as an Antiseptic 710
Fowler, Charles C.: The Relation of Pelvic Disease and Psychical Disturbances in Women 460
Fracture, A Method of Reducing the Deformity and Retaining the Fragments in Position in 197
Ununited, An Analysis of Seventy Cases in Children . . . 49
of Fetal Bones During Delivery 712
of the Lower End of the Radius, Etiology of 145
Fullerton, George B.: Elected Vice-Provost of the University . . 724
Furness, Horace Howard: Address at the Commencement Exercises of the University of Pennsylvania. Also Remarks Made at the Unveiling of the Model of a Statue of the Retiring Provost . 737
Fussell, M. Howard: Tetany . . . 229

Galactophoritis 400
Gall-Bladder and Bile-Ducts, The Surgery of the, with brief notes on Cases 853
Gall-Stone Colic, The Physical Diagnosis of 479
Gangrene, Acute, of the Lower Extremities, in a Case of Locomotor Ataxia 44
Gastric Ulcer, Chloroform in . . . 711
Diagnosis and Treatment of . 47

Genital Organs, Female, Ultimate Terminations of Nerves in . . . 863
Glottis, Spasm of, and Tetany . . 260
Glycosuria, Chronic 333
Goodell, William: The Conservative Treatment of the Female Pelvic Organs 649
The Great Medical Error of the Day 217
Goitre, Injections of Iodoform in . 264
Gonococcus, Simple Method of Cultivating 208
Gonorrhea, Can one Acquire it from Another Who has it Not 780
Gonorrheal Infection, The Relation of, to Disease of the Pelvic Organs 343
Ophthalmia 235
Gravid Fallopian Tube Removed by Celiotomy before Rupture . . 324
Great Medical Error of the Day, The 217
Guaiacol as an Antipyretic 709
Gynecological Department of the University of Pennsylvania, The Facilities of the Pathological Laboratory of, Extended to the Profession . . 389
Examination, The Erect Posture for 344
Specimens, The Examination of 565
Gynecology, Minor, Report of a Year's Work in 491
Urine, Analysis in 778

Hamann, C. A.: Notes on some Cases of Congenital Malformations of the Face and Ears; with an Additional Note by Howard S. Straight 759
Hamilton, A. J.: Parotitis Following Pneumonia 250
Harrison, Charles C.: Chosen Acting Provost 642
Harrison Laboratory, The John . . 564
Heart, Auscultation of, in Children 851
Irregularity of, in Childhood . 183
Weak 476
Disease, Chronic, The Complications of Pregnancy with . 123
Heart Disease, Valvular, Treatment of 852
Muscle, Diseases of the, in Typhoid Fever, Scarlet Fever, and Diphtheria 702
Hemophilia and Parturition . . . 134
Hemorrhagic Glaucoma: its Nature, Prognosis, and Treatment . 85
Hemorrhoids, A Bloodless Operation for 776
Treatment of 336
Hepatic Abscess, Pathology of . . 635
Hernia, Radical Cure of Femoral and Inguinal 708
in Children, Operative Treatment of, with a Report of Fifty Cases 197
Strangulated 707
Strangulated Inguinal, Two Rare Varieties of, Complicated by Retained Testicle . 777
Strangulated, Involving the Appendix Vermiformis . . . 126
Herpes Zoster Universalis, A Case of 276
Herpetic Eruptions, Arsenic in . . 721
Higher Medical Education, The True Interest of the Public and of the Profession 69
Hip, Congenital Dislocation of the, Hoffa's Operation for 51
Joint Disease, What shall we do for 358
Hirst, Barton Cooke: Two Cesarean Sections, and Three Symphyseotomies; a Year's Work in the Surgical Treatment of Insuperably Obstructed Labor 293
Hospital Appointments 845
How, W. Storer: Cystic Evacuation and Irrigation 370
Hughes, William E., Infection by Tuberculosis through the Respiratory Apparatus 826
Hunt, Dr. Wm.: Resignation from the Pennsylvania Hospital . . . 278
Hydrastinine Hydrochloras, U. S. P., 1890 613
Hydrocele in the Female 616
Hydrocephalus, Congenital, Surgical Treatment of 394

Hydrotherapeutic Treatment, Blood Changes in 626
Hypnotics, The Comparative Value of the 485
Hysterectomy, For other Causes than Fibroid and Malignant Diseases 860
Abdominal, in which the Ureter was Resected and Implanted into the Bladder . . 454

Icterus Neonatorum, Clinical Study of 776
Immunity in its Relation to the Function of the Spleen 872
Immunization, Experimental, of Rabbit against Tetanus, the Importance of the Spleen in the . . 871
Influenza, Cases of Simulating Typhoid and Cerebro-Spinal Meningitis 289
Insanity, The Inadequacy of the Morbid Changes Found Post-Mortem to Explain the Manifestations of 657
Erratum 794
Intestinal Anastomosis, A Method of Making 262
Intra- and Extrauterine Fetation at Full Term; Cesarean Section (Porro) 866
Intubation of the Larynx 258
Intussusception, An Analysis of Twenty-Eight Cases of 482
Iodism, Acute 62
Iris, Clinical History of a Case of Successful Extraction of a Piece of Steel from, in which Purulent Inflammation had been Established; with Prompt Subsidence of the Inflammatory Reaction and Restoration of Full Vision . 520
Itching, Menthol in Cutaneous Affections Attended with 338

Jackson, Edward: Foreign Bodies within the Eyeball 28
Jaundice, Obstructive, Olive Oil in . 338
Jaw, Lower, Resection of One-half of the, Followed Immediately by the Fitting of an Artificial Substitute 777
Jopson, J. H.: Grain of Corn in the Trachea; Tracheotomy and Removal; Recovery 473
Osteo-Chondroma of Clavicle; Excision; Recovery 609

Keiser, Elmer E.: A Case of Torsion of the Neck in Vertex Presentation 467
Kennedy, Catherine N., and Charles F. J. Kennedy, Cystic Degeneration of the Chorionic Villi 677
Charles F. J., and Catherine N. Kennedy, Cystic Degeneration of the Chorionic Villi . 677
Kidney, Clinical Phenomena of Diphtheritic Affection of the 334
Clinical Study of the Effects of Inhalations of Chloroform and Ether upon the 854
Movable, Observations on Cases of 811
Sarcomatous, Early Extirpation of a 122
Surgery of the, in Children . . 483
The Effect of Chloroform Narcosis upon the 483
Kidneys, Clinical Studies as to the Influence of Chloroform Inhalations upon the 855
Knee, Forcible Correction of Angular Deformity of the 262
Joint Disease, Operative Treatment of 162
Knives, Disinfection of, for Operation 335

Labor, Diet after 628
Difficult, Occasioned by Enormous Distention of the Fetal Bladder 401
Further Report upon Two Hundred, Conducted without Internal Disinfection . . 204
Method for the Rapid Termination of 204
Normal, The Management of, by Abdominal Palpation only 713
Operative Interference During the Second Stage of 342

Labor, Premature, and Abortions, Concerning the Etiology and Treatment of 203
Preliminary Vaginal Douche in 205
Sudden Death during, and the Lying-in Period 867
Larynx, Foreign Bodies in the, Tracheotomy for 483
Intubation of the 769
O'Dwyer's Tubes in Chronic Stenosis of 45
Lessing, Ferdinand: An Interesting Case in Obstetrics 469
Lichen Urticatus, The Etiology of 720
Lithemia 497
Liver, Acute Yellow Atrophy of the 562
Displaced, Fixation of 260
Hernia of the 333
Lloyd, James Hendrie: Pachymeningitis and Myelitis from Pott's Disease, and Septic Neuritis of the Cauda Equina from a Bed-Sore over the Sacrum 148
Loveland, Bradford C.: Note on a Case of Chorea Treated by Quinine 605
Lungs, A Case of Complete Absence of the 562
Symmetrical Hemorrhagic Infarct of Both 186
Lupus Erythematosus as an Imitator of Various Forms of Dermatitis 721
Vulgaris, A Special Method of Applying the Thermo-Cautery in the Treatment of Certain Cases of 721
The Treatment of 549
McFarland, Joseph: Failure of an Attempt to Modify the Color of Bacillus Prodigiosus by Colored Light 675
Is the Tubercle Bacillus Killed by Boiling? 817
McNabb, Charles P., Raynaud's Disease 822
Malaria, Methyl-Blue in 46
Phenocoll Hydrochlorate in . 266
Malarial Fever, The Intermittent Treatment with Quinine 44
Martin, Edward: Infection by Tuberculosis through the Genito-Urinary Tract 840
Prevesical Inflammation . . . 363
Massage in Diseases of the Skin . 276
Massey, Frank: Symmetrical Hemorrhagic Infarct of Both Lungs 186
Massey, G. Betton: Electricity in the Treatment of Chronic Prostatitis and other Conditions Underlying Impotence in Men 366
Mastitis, Subacute, and Cancer of the Breast 128
Mastoid Disease Following Epidemic "La Grippe" 763
Maxilla, Superior, Advancement of a Portion of, in Cases of Hare-Lip 129
Measles, A Bacillus in the Blood of Patients with 347
Medical Corps of the U. S. Army, Examinations for Positions on the 409
Medical Inconsistencies 188

MEDICAL PROGRESS.

Dermatology 61, 275, 494, 728
Gynecology . . . 57, 135, 205, 268, 343, 402, 491, 558, 630, 715, 787, 860
Medicine 44, 122, 192, 257, 332, 390, 479, 545, 617, 702, 744, 850
Obstetrics 55, 133, 203, 266, 341, 400, 489, 557, 627, 712, 785, 865
Pathology 59, 138, 208, 274, 347, 405, 493, 561, 633, 710, 791, 869
Surgery 48, 126, 195, 260, 335, 394, 482, 549, 620, 705, 776, 853
Therapeutics . . 52, 130, 200, 263, 338, 398, 485, 552, 624, 709, 781, 856

Ménière's Disease, Salicylate of Sodium in 130
Meningitis and Brain Abscess of Otitic Origin, A Fatal Case of 593
Forms of, in Children 548
"Grippe," A Case of 195
Mental Disorder as a Symptom in Disease of the Nervous System . 775
Mesentery, Lipoma of the 344
Microbes, The Fluorescent Function of 793

Micro-Organisms, Pathogenic, The Excretion of, through the Sweat 791
Miliaria Palmaris et Plantaris, Chronic 62
Milk, Cocaine to Suppress the Secretion of 865
Human, Micro-Organisms Found in 210
Mitral Stenosis and Pregnancy, The Reciprocal Relations of 435
Morphia-Poisoning, Potassium Permanganate in 606
Mucous and Fibrinous Masses, Formation of, in the Genito-Urinary System 619
Musser, J. H., William Pepper, and John B. Deaver: A Case of Purulent Pericarditis; Paracentesis of the Pericardium 297
Mutter Lectureship of the College of Physicians 563
Mycosis Fungoides, Discovery of Protozoa in 138
Myxedema, The Treatment of, by Feeding with Thyroid Gland 482
Treated by Thyroid Extract . 702
Myxosarcoma of the Right Frontal Lobe with Optic Neuritis; Autopsy 528

Necrology: Baird, Dr. William Jordan Bates 331
Brown-Séquard, Dr. Edouard . 564
Bryan, Dr. J. Mussina 540
Calhoun, Dr. James Theodore 43
Casanova, Dr. Luciano 539
Corson, Dr. Edward F. 43
Cox, Dr. Abraham 43
Evans, Dr. Robert Frank . . . 475
Gayley, Dr. James F. 331
Gotwold, Dr. Jacob H. 43
Gregg, Dr. James Potter . . . 43
Grier, Dr. William P. 43
Hammond, Dr. George W. . . 43
Hopkinson, Dr. Joseph 43
Hylton, Dr. John Dunbar . . 191
Jemison, Dr. Lewis 191
Keating, Dr. John M. 253
Keating, Dr. William V. . . . 611
Kerlin, Dr. Isaac N. 191
McGee, Dr. James J. 43
Minas, Dr. David J., Jr. . . . 43
Necrology: Palmer, Dr. Wm. Gray 540
Parry, Dr. George Randolph . 474
Peltz, Dr. Samuel H. 43
Phillippo, Hon. Dr. J. C. . . . 279
Pyle, Dr. Charles H. 43
Rauch, Dr. John H. 539
Sherk, Dr. J. K. 43
Shoemaker, Dr. George G. . . 698
Simpson, Dr. Richard 43
Smith, Dr. Charles Gilman . . 540
Somers, Dr. Thomas 43
Still, Dr. Albert Owen 43
Tappan, Dr. Benjamin 43
Wendel, Dr. James E. 475
Widdifield, Dr. C. S. 43
Young, Dr. William Gamble . 475

Nephritis, Acute, and Skin-Disease 851
Nephro-Lithotomy, Double 550
Nervous System, The Therapeutics of Infectious Processes in . . . 784
Neuralgias, Periodic, Ergot in the Treatment of 553
Neurectomy, Intracranial 551
Neuritis, Multiple, Caused by Arsenic Used in the Treatment of Chorea 469
Senile Form of 480
Newborn, the Treatment of the Accumulation of Milk in the Breasts of the 868
Nitrites, Therapeutic Uses of . . . 339
Noble, Dr. Charles: Service of Kensington Hospital for Women . . 34
Norris, W. F., and James Wallace: A Contribution to the Anatomy of the Human Retina, with a Special Consideration of the Terminal Loops of the Rods and Cones 353
Norton, H. G.: Diabetes in Children 536

Obstetrics, An Interesting Case in . 469
Ointment Bases, The Comparative Value of Lanolin and Adeps Lanæ as 721
Oliver, Charles A.: Clinical History of a Case of Spindle-Celled Sarcoma of the Chorioid, with a Study of the Micro-

scopic Condition of the Growth 156
Oliver, Charles A.: Clinical History of a Case of Successful Extraction of a Piece of Steel from an Iris in which Purulent Inflammation had been Established, with Prompt Subsidence of the Inflammatory Reaction and Restoration of Full Vision 520
The Relation of Ophthalmoscopic Findings to Diseases of the Cerebral Cortex, as Illustrated by a Series of Observations upon Nearly Two Hundred Cases of Epilepsy and General Paralysis of the Insane 372
Ophthalmoscopic Findings, The Relation of, to Diseases of the Cerebral Cortex, as Illustrated by a Series of Observations upon Nearly Two Hundred Cases of Epilepsy and General Paralysis of the Insane 372
Opium as an Hypnotic in Old Age 321
Optic Thalamus, A Case of Tumor of the 21
Tumor of the, Correction . . . 142
Orchitis, Guaiacol Applications in the Treatment of 859
Osler, William: Case of Pericarditis Treated by Incision and Drainage 248
Parotitis in Pneumonia 245
The Leaven of Science 573
Osteomalacia, Ovariotomy for . . 205
Puerperal, The Question of the Origin of 628
Otomycosis 522
Ott, Isaac: Temperature and Polypnea 417
Out-Door Visiting Department of the Hospital of the University . 140
Ovariotomy on Patients Over 70 Years of Age by American Operators 138
Ovaritis, The Treatment of 345
Ovary, Small Cystic Degeneration of the 631
Ovum, Apparent Migration of the, in a Case of Double Tubal Pregnancy 556
The Migration of the, to the Tube 555

Pachymeningitis and Myelitis from Pott's Disease, and Septic Neuritis of the Cauda Equina from a Bed-Sore over the Sacrum 148
Packard, Frederick A.: On the Infection of the Human Body by Tuberculosis through the Alimentary Tract 831
The Uses of Venesection . . . 511
Palates, Cleft of the Hard and Soft 778
Pan-American Medical Congress, First, President's Address . . . 1
Pancreatitis, Acute Hemorrhagic, A Case of 479
Papain 131
Paralysis, Alcoholic, with Fatal Hematemesis 456
Parasitism of Carcinoma, as also the Sarco-, Myxo-, and Micro-Sporidia of Muscle-Tissue . . . 349
Parke, William E.: Case of Perityphlitic Abscess 34
Operation on a Diabetic Patient 253
Parotitis Following Pneumonia 245, 350
Parturition, Hemophilia and . . . 134
Partus Serotinus, A Case of 868
Patek, Arthur J.: Report of Surgical Operations and Interesting Cases at the German Hospital 376
Patella, Fracture of the, Treated by Wiring 198
Pelvic Diseases and Psychical Disturbances in Women, The Relation of 460
Floor, The Pathology and Treatment of Injuries of the 57
Inflammatory Diseases, The Diagnosis of 788
Penis, Tuberculosis of the 549
Penrose, Charles B.: A Case of Abdominal Hysterectomy in which the Ureter was Resected and Implanted into Bladder 454
Congenital Absence of the Vaginal Cervix 185

Penrose, Charles B.: Gravid Fallopian Tube Removed by Celiotomy before Rupture . . . 324
Two Cases of Calcification of the Uterus 465
Pental, Death from the Use of . . 130
Pepper, William: Introductory Remarks at the Opening of the Wistar Institute of Anatomy and Biology 569
Bronze Statue of, to be Presented to the University . . 640
Higher Medical Education, The True Interest of the Public and of the Profession . . . 69
J. H. Musser and John B. Deaver: A Case of Purulent Pericarditis; Paracentesis of the Pericardium 297
President's Address, First Pan-American Medical Congress 1
Resignation of, as Provost of the University of Pennsylvania 612, 635
Pericarditis, A Case of Purulent, Paracentesis of the Pericardium 297
Case of, Treated by Incision and Drainage 248
Perineum, The Protection of the, and the Delivery of the After-Coming Head 341
Peritonitis, Lettsomian Lectures on 620
Traumatic, without Evidence of External Injury, The Treatment of 386
Tuberculous, A Remarkable Case of, in a Woman 674
Perityphlitic Abscess with Operation, Case of 34
Pharmacopeia, Notes on the United States, 1890; Revision . . . 255
Seventh Decennial Revision of 120
Phelps, A. M.: What shall we do for Hip-Joint Disease? 358
Phenocol, Therapeutic Value of . . 858
Phthisis, Creosote in 553
Inhalations of Peppermint in 710
The Mixed Infection of . . . 719
Pulmonary, and High Altitudes 46
Physicians of the United States . . 534
Pichi in Diseases of the Genito-Urinary Tract 131
Piperazine 771
Effects of, on the Urine 53
Placenta, A Case of Tuberculosis of the 341
Contribution to the Pathology of the 56
Large, from a Case of Hydramnios 712
Previa, Concerning Air-Embolism in 786
Traumatic Detachment of, Fetus Born Alive 133
Pleurisy, Diaphragmatic 124
Pneumonia, An Interesting Degree of Hyperpyrexia in 471
Croupous, Two Cases of . . . 225
Ice in the Treatment of . . . 122
In Young Children 618
Parotitis in 245, 350
Poisoning, Saline Injections in CO- and Coal-Gas 711
Polyuria of Pregnancy, A Case of Exaggerated 385
Potassium Permanganate as an Antidote to Vegetable Poisons . 747
Potts, Charles S.: A Case of Multiple Neuritis Caused by Arsenic used in the Treatment of Chorea 469
A Report of Two Cases of Procursive Epilepsy 696
Prairies, A Source of Infection on American 250
Pregnancy, A Case of Eleven-Month 267
Complicated by Heart-Disease, The Treatment of 629
Long-Continued Hemorrhage in the Later Half of, due to Detachment of a Normally-Situated Placenta and Accompanied by Septic Intoxication, with a Report of Two Cases 55
Nephritis in 489
Salivation of 627
Small-Pox in 489
Syphilis and 134

Pregnancy, The Complication of, with Chronic Heart-Disease . 123
Uncontrollable Vomiting in . 267
Presentation, Face, The Management of 866
Vertex, Obliquity of the Uterus in 133
Preston Retreat, Physicians in Charge of 475
Prevesical Inflammation 363
Prize, Alvarenga, of the College of Physicians of Philadelphia . 408
The Samuel D. Gross 407
Procidentia Uteri, The Mechanism of Complete 716
Prostate, Pediculated Tumor of the 550
Prostatectomy, Suprapubic 126
Prostatic Hypertrophy, Ligation of the Internal Iliac Artery for . . 336
Prostatitis, Chronic, and Other Conditions Underlying Impotence in Men, Electricity in the Treatment of 366
Suppositories of Ichthyol in . 130
Protozoa, Parasitic, in Cancerous Tumors, Further Researches upon 406
Pure Cultures of 347
Pruritus, A Local Application for . 616
Psoriasis, Preventive Treatment of Relapses of 495
Thyroid Extract in 681
Psorospermose Folliculaire Vegetante (Darier) 61
Public Health, A National Department of 699
Puerperal Eclampsia 47, 867
Fever, The Prophylaxis of . . 56
Inflammation 865
Patients, Neglect of 39
Pulmonary Phthisis, The Derivatives of Creosote in 487
Pus, Green, and the Bacillus Pyocyaneus 862
Pyelitis, Calculous, A Case with Complete Suppression of Urine for Seven Days; Relieved by Operation 196
Pylephlebitis, Suppurative, A Case of, in which Laparotomy was performed 855
Pylorectomy with Gastro-Duodenostomy, Posterior 780
Pylorus, Tumor of the, Pylorectomy for 395
Pyodermatitis 277
Pyometra 558
Pyopericardium, Incision and Drainage in 123

Quinine in the Intermittent Treatment of Malarial Fever . . 44
Note on a Case of Chorea, treated by 605

Rachitic Deformities and the Deformities Following Infantile and Spastic Paralysis, Correction of . 673
Rachitis, Fetal, Concerning . . . 204
Randall, B. Alexander: A Fatal Case of Meningitis and Brain Abscess of Otitic Origin 593
Raymond, Thomas U.: Purpura Complicating Vaccination . . . 535
Raynaud's Disease 822
Rectal Stricture of Puerperal Origin Relieved by Laparotomy 198
Rectum, Removal of four Inches of the, Anastomosis by Murphy's Button 549
Reed, Howard: An Improved Two-Way Catheter 607
Reichert, Edward T.: The Effects of Lesions of Certain Parts of the Brain upon the Heat Process 303
Renal Disease, Treatment of . . . 703
Respiration and Circulation, Action of Chloroform on the 265
Respiratory Stimulant, Acetic Ether as a 264
Retention of Urine after Operation 336
Retina, Human, A Contribution to the Anatomy of the, with a Special Consideration of the Terminal Loops of the Rods and Cones 353

REVIEWS.

Allen, Harte, Harlan, and Van Harlingen: A Hand-Book of Local Therapeutics 214

An American Text-Book of Gynecology, Medical and Surgical, for Practitioners and Students, Edited by J. M. Baldy 413
ANDERSON, WINSLOW: Mineral Springs and Health Resorts of California 281
ASHHURST, JOHN, JR.: The Principles and Practice of Surgery . . 280
BARTHOLOW, ROBERTS: Cholera: Its Causes, Symptoms, Pathology, and Treatment 416
A Practical Treatise on Materia Medica and Therapeutics 566
BERRY, GEORGE A.: Disease of the Eye, A Practical Treatise for Students of Ophthalmology 64
BOUCHARD, CHARLES: Lectures on Auto-Intoxication in Disease, or Self-Poisoning of the Individual 728
BROCKEWAY, FREDERICK, J.: Essentials of Physics 876
BULKLEY, L. DUNCAN: Syphilis in the Innocent 795
BURNETT, CHARLES H.: System of Diseases of the Ear, Nose, and Throat 283
BUSHONG, CHARLES H.: Modern Gynecology 67
CHAPMAN, HENRY C.: A Manual of Medical Jurisprudence and Toxicology 216
CONNERS, W. F.: Differential Diagnosis of Common Diseases of the Eyes 567
COTTERELL EDWARD: Syphilis; its Treatment by Intra-Muscular Injections of Soluble Mercurial Salts 280
DAVIS, AUBREY, J., and Allen J. Smith: Naphey's Modern Therapeutics 65
Disease of Inebriety from Alcohol, Opium, and Other Narcotic Drugs, The; Its Etiology, Pathology, Treatment, and Medico-Legal Relations 216
DOTY, ALVAH H.: A Manual of Instruction in the Principles of the Prompt Aid to the Injured . 875
DUNGLISON, ROBLEY: A Dictionary of Medical Science 412
FIELD, GEORGE P.: A Manual of Diseases of the Ear 285
FLÜCKIGER, F. A.: Reactions . . 214
GARRIGUES, HENRY J.: A Text-Book of the Diseases of Women 726
GOULD, GEORGE M.: An Illustrated Dictionary of Medicine, Biology, and Allied Sciences . . 724
GOWERS, W. R.; A Manual of Diseases of the Nervous System . . 648
GRAY, HENRY: Anatomy; Descriptive and Surgical 414
HARLAN, Allen, Harte, and Van Harlingen: A Hand-Book of Local Therapeutics 214
HARTE, Allen, Harlan, and Van Harlingen: A Hand-Book of Local Therapeutics 214
HIRT, LUDWIG: The Diseases of the Nervous System; A Text-Book for Physicians and Surgeons 66
HOLDEN, WARD A.: An Outline of the Embryology of the Eye . . . 794
HORNE, JOHN FLETCHER: Trephining in its Ancient and Modern Aspects 496
HYDE, J. NEVINS: A Practical Treatise on Diseases of the Skin 351
International Clinics 144
International Medical Annual and Practitioners' Index, The . . 215, 874
JACKSON, GEORGE THOMAS; A Practical Treatise on the Hair and Scalp 795
JEWETT, CHARLES; Outlines of Obstetrics 568
KELSEY, CHARLES B.: Diseases of the Rectum and Anus, their Pathology, Diagnosis, and Treatment 67
KIRCHHOFF, THEODORE: Hand-Book of Insanity for Practitioners and Students 568
LEONARD'S Physicians' Day-Book 287
LOOMIS, ALFRED M.: Lessons in Physical Diagnosis 282

LOUMEAU, DR. E.: Chirurgie des Voies Urinaires 413
MARTIN, EDWARD: Essentials of Minor Surgery, Bandaging, and Venereal Diseases 286
Medical News Visiting List, The, 1894 281
MORRIS, HENRY: Essentials of Practice of Medicine 567
MORRIS, MALCOLM: Diseases of the Skin 415
MORROW, PRINCE A.: A System of Genito-Urinary Diseases, Syphilology, and Dermatology 351
MORTON, HONNOR C.: The Nurse's Dictionary of Medical Terms and Nursing, Treatment 874
MUSSER, JOHN H.: A Practical Treatise on Medical Diagnosis for Students and Physicians . . . 410
NANCREDE, CHARLES B.: Essentials of Anatomy 873
NORRIS, RICHARD C.: Syllabus of the Obstetrical Lectures in the University of Pennsylvania . . . 875
NORRIS, WILLIAM F., and Charles A. Oliver: A Text-Book of Ophthalmology 212
OLIVER, CHARLES A., and William F. Norris: A Text-Book of Ophthalmology 212
PARSONS, J. INGLIS: The Healing Rodent Cancer by Electricity . . 565
PEPPER, WILLIAM: A Text-Book of the Theory and Practice of Medicine by American Teachers 645
PIERSOL, GEORGE A.: Normal Histology 285
PLAYFAIR, W. S.: A Treatise on the Science and Practice of Midwifery, with Notes and Additions by Robert P. Harris, A.M., M.D. 872
Proceedings of the Philadelphia County Medical Society 143
RANSOM, CHARLES C.: Diseases of the Skin 143
REMINGTON, JOSEPH P., Horatio C. Wood, and Samuel P. Sadtler: Dispensatory of the United States, The 411
REMONDINO, P. C.: The Modern Treatment of Invalids with Pulmonary Consumption in Southern California 873
SADTLER, SAMUEL P., Horatio C. Wood, and Joseph P. Remington: Dispensatory of the United States, The 411
SAJOUS, CHARLES E.: Annual of the Universal Medical Sciences 215
SCHOFIELD, ALFRED T.: Elementary Physiology for Students 144
SEILER, CARL: Hand-Book of the Diagnosis and Treatment of Diseases of the Throat, Nose, and Naso-Pharynx 282
SENN, N.: Syllabus of Lectures on the Practice of Surgery . . . 414
SIMON, W.: A Manual of Chemistry: A Text-Book Especially Adapted for Students of Medicine and Pharmacy 65
SMITH, ALLEN J., and Aubrey J. Davis: Naphey's Modern Therapeutics 65
STARR, LOUIS: An American Text-Book of the Diseases of Children by American Teachers 725
STARR, M. ALLEN: Brain Surgery 63
STEVENS, A. A.: A Manual of Therapeutics 647
SUTTON, J. BLAND: Tumors, Innocent and Malignant 656
The Year-Book of Treatment for 1894 567
Transactions of the American Dermatological Association . . 874
of the American Orthopedic Association 286
TYSON, JAMES: Manual of Physical Diagnosis for the Use of Students and Physicians 142
VAN HARLINGEN, Allen, Harte, and Harlan: A Hand-Book of Local Therapeutics 214
VIERORDT, OSWALD: A Clinical Text-Book of Medical Diagnosis for Physicians and Students . . 566

WHARTON, HENRY R.: Minor Surgery and Bandaging 281
WHITTAKER, JAMES T.: The Theory and Practice of Medicine . . 287
WOOD, HORATIO C., Joseph P. Remington, and Samuel P. Sadtler: Dispensatory of the United States, The 411
Year-Book of Treatment, The . . . 143
YEO, J. BURNEY: A Manual of Medical Treatment or Clinical Therapeutics 284

Rhabdomyoma 719
Rheumatism, Acute, Etiology of . 122
Articular, Suppositories of Sodium Salicylate in 202
Treated by the Absorption of Salicylic Acid Through the Skin 486
Chronic, The Micro-Organism of 493
External Treatment of, by Inunctions of Salicylic Acid . 131
Risley, S. D.: Hemorrhagic Glaucoma; its Nature, Prognosis, and Treatment 85

Salicylic Acid as a Vermifuge . . . 53
Salol in Cholera, Apropos of . . . 45
New Use of 483
Salol-Iodoform 201
Salophen 54, 552
Salpingitis, Gonorrheal 273
Sarcoma of the Chorioid, Clinical History of a Case of Spindle-Celled, with a Study of the Microscopic Condition of the Growth 156
Sarcomatous Tissue, Parasitic Cellular Inclosures in 633
Scapulæ, Fracture of Both, in an Infant 470
Scarlatina, The Pathological Effects of Certain Substances Derived from the Spleen in Cases of 274
and Guaiacol 850
Scarlet Fever, A Study in, by Albert S. Ashmead 31
Transmission of Immunity from, by the Inoculation of Human Blood-Serum 211
Schamberg, Jay F.: A Case of Exaggerated Polyuria of Pregnancy 385
Scleroderma, Note upon a Case, and its Treatment 494
Scrotum, Dermoid Cyst of the . . 51
Sea-Sickness, The Treatment of . . 625
Seborrhea, Benzoin in 720
Septicemia of Puerperal Origin Through Infection of the Finger 785
Sex, The Influence of, by Procreation 56
Shepherd, I. M.: Alcoholic Paralysis with Fatal Hematemesis 456
Shimer, William S.: Mastoid Disease Following Epidemic "La Grippe" 763
Shoulder, Treatment of Old Luxations of the 779
Sinkler, Wharton: A Case of Tumor of the Optic Thalamus 21
Skin, Linear Atrophy of the, with Hyperesthesia of Adjacent Parts 494
Skull, Case of Compound Fracture of 117
Small Pox, Broncho-Pneumonia in 545
Red Light in 540
Society, Cleveland Medical, Meeting of the 641
Sodium Benzoate 782
Nitrate as a Therapeutic Agent 858
Solar Rays, The Influence of, on the Skin 62
Soothing Syrup without Opium . . 135
Specialism in Medicine 772
Spina Bifida, Treatment of 127
Spirilli, Two New Varieties Found in Water 139
Spirocheta, Obermeir's, The Technique of Investigating 209
Spleen, Enlarged in Chlorosis . . 45
Splenectomy, The Influence of, on the Bactericidal Powder of the Blood 209

Spores, A New Method of Staining 405
Stewart, Henry: Case of Compound Fracture of the Skull 117
Stomach, Cancer of, Chlorate of Soda in 193
Dilatation of the 392
Direct Electrization of the . . 263
Laparotomy for Perforating Ulcer of the 50
Stomatitis, Peroxide of Hydrogen in 487
Stone, Extraction by Laparotomy from the Human Bladder of the Largest ever Recorded as Successfully Removed 396
Stout, George C.: Otomycosis . . . 522
Straight, Howard S.: Additional Note on a Case of Congenital Malformation of the Face and Ears 759
Street Dust, The Examination of, for Tubercle Bacilli 348
Strontium Lactate, The Therapeutic Action of 781
Students, Number of, in German Universities 770
Sulphur in Surgery 625
Sulphonal, The Therapeutic Action of 52
Suprarenal Hemorrhage 852
Surgical Operations and Interesting Cases at the German Hospital, Report of 489
Symphyseotomy 489
A Case of, on a Man 127
in Bladder Operations 128
Syphilis, Hereditary, Diagnosis of 392
Synopsis of a Chinese Secret Manuscript on 530

Tabes, Chronic, Large Doses of Iodide of Potassium in 399
Tachycardia, Paroxysmal, Digital Compression of the Pneumogastric in 857
Tampon, The Intra-Uterine 271
Tamponning the Uterus with Gauze, An Instrument for 346
Tattoo Marks, The Removal of . . 61
Temperature and Polypnea 417
Temperatures, Extreme, the Use of in Surgery 49
Tendon, Divided, Finding the Upper End of 705
Testicle, Ectopia of, in the Young, and its Treatment 855
Tetanus of the New-Born 391
Tetany 229
Spasm of the Glottis and . . . 260
The Leaven of Science 573
Thoracic Surgery, Present Status of 196
Throat Affections, Membranous . . 258
Tic Douloureux 391
Tinctures, shall they be Prepared from Fluid Extracts? 37
Tomlinson, H. A.: The Inadequacy of the Morbid Changes Found Post-Mortem to Explain the Manifestations of Insanity . . . 657
Tongue, Cancer of the, Report of Sixty-nine Cases 337
Lipoma of the 394
Tonsil, Primary Sarcoma of the . . 198
Extirpation of a Sarcomatous, and Portions of the Adjoining Pillars of the Fauces and Posterior Portions of the Tongue 550
Tonsillar Hemorrhage, A New Instrument for the Control of . . . 129
Topography, Cranio-Cerebral . . . 48
Trachea, Grain of Corn in, Tracheotomy, and Removal; Recovery 473
Trendelenburg's Posture in Celiotomy, a Caution Concerning the Employment of 346
Trichophyton, The Saprophytic Existence of the 62
Trional 54, 624
Tubercle Bacilli in Sputa of Patients who have taken Creosote . . 259
A New Method of Discovering, in the Sputum of Consumptives 871
Bacillus, Is it Killed by Boiling? 817
Staining in a Sublimate Solution of an Aniline Dye 792

Tubercular Changes in the Human Corpse, Frequency of 208
Tuberculin in the Diagnosis of Tuberculosis 480
Tuberculosis, Enemata of Creosote in 259
in Children 390
Infection of the Human Body by, through the Alimentary Tract 831
through the Genito-Urinary Tract 840
through the Respiratory Apparatus 826
in Prisons 841
Prevention of, ... 481, 541
Treatment of, by Permanent Aeration 851
of the Lungs, New Treatment of 851
The Early Recognition of . . 101
Of the Female Genital Organs, A Contribution to the Etiology of Primary 631
Laryngeal, for the Dysphagia of 538
Surgical 837
Tumors, Inoperable, The Treatment of, with the Toxines of Erysipelas and the Bacillus Prodigiosus 783
Typhlitis, The Medicinal Treatment of 555
and Appendicitis, Tuberculous 261
Typhoid Bacillus, Formalin as an Aid to Diagnosticating the 635
Fever, A Case of, Notable for the Slow Pulse and Subnormal Temperature . . 537
In Pregnancy and Labor . 480
Lactophenin in 784
Neurosis Following . . . 391
Report of 617
Treatment of 850
With Sterilized Cultures of Bacillus Pyocyaneus . . 719
The Urine and Renal Complications in 703
Value of the Examination of the Blood in 704
Tyson, James: Elected a Visiting Physician to the Philadelphia Hospital 279
Two Cases of Croupous Pneumonia 225

Umbilical Hemorrhage in an Infant, Uncontrollable 401
Umbilicus, Hemorrhage from the . 55
University, Increased Clinical Facilities at the 847
University of Pennsylvania, Medical Department, Number of Students in the 388
Special Lectures in 350
Ureteral Fistula, Nephrectomy for 395
Uretero-Ureteral Anastomosis . . 549
Uretero-Vaginal Fistula 559
Following Vaginal Hysterectomy; Successful Reimplantation of Ureter into Bladder 787
Ureters, Concerning Compression of the, by the Gravid Uterus and Consecutive Pyonephrosis 786
Drainage of 48
Urethra Traumatic Stricture of, Operative Indications in . . 484
and Bladder, Ichthyol in Catarrhal Affections of the . . 627
Urine, Total Suppression of Nephrotomy for 395
Urticaria, Treatment of 721
Uterine Appendages, Conservative Surgery on the 864
Carcinoma, The Recurrence of, with Particular Reference to Inoculation Recurrence 630
Fibroma, Associated with Anuria, A Case of; Hysterectomy and Recovery 863
Fibroids, The Present Status of the Treatment of 345
Hemorrhage, Salipyrin in . . 339
Inertia, The Treatment of, without Drugs or Tonics . . 401
Mucous Membrane, The Pathology of the 861

Uterine Myoma, A New Method of Aiding in the Atrophy of, without Removal 492
Prolapse, An Operation for . . 491
Uterine Tumors, Vaginal, Ligation of a Portion of the Broad Ligament for 137
Utero-Vaginal Canal, Dührssen's Tamponnade of the 341
Uterus, The Abdominal Myoma Operation, with Particular Consideration of Hysterectomy for Myoma of the . . . 207
Cancer of the, Relative Merits of Vaginal Hysterectomy and Supravaginal Amputation of the Cervix 136
Dangers Following Total Extirpation per Vaginam . . . 58
The Electrical Treatment of Fibroid Tumors of the . . . 715
Hemorrhage from the 135
Myoma of, Ligation of the Vasa-Uterinæ for 206, 402
Treatment of Rupture of the . 556
Two Cases of Calcification of . 465
Vaginal Fixation of, The Technique of, after the Method of Mackenrodt 206

Vaccination, Diseases of 123
Purpura Complicating 535
Vaginal Cervix, Congenital Absence of the 185
Examination, What are the Indications for 717
Uterine and Ovarian Displacement, the Operative Treatment of 789
Valedictory Address to the Graduating Classes in Medicine, Dentistry, and Veterinary Medicine of the University of Pennsylvania 729
Varicocele, The Treatment of . . . 50
Venesection, The Uses of 511
Venous Thrombosis of the Lower Extremities Following Celiotomy as a Result of the Trendelenburg Position and Ether Anesthesia 862
Vernix Caseosa, The Nature of . . 275
Vertebræ, Fracture of Sixth and Seventh Cervical 327
Vertex Presentation, A Case of Torsion of the Neck in 467
Vesical Calculi Accompanied by Unusual Symptoms 260
Vesico-Vaginal Fistula, A New Operation for 344
The Treatment of 345
Vomiting, Nitroglycerin in 611
Wagner, E. C.: Fracture of Both Scapulæ in an Infant 470
An Interesting Degree of Hyperpyrexia in a Pneumonia Patient 471
Wallace, James: Gonorrheal Ophthalmia 235
The Microscopical Anatomy of the Crystalline Lens 797
The Physical and Physiological Basis of Color 504
And W. F. Norris: A Contribution to the Anatomy of the Human Retina, with a Special Consideration of the Terminal Loops of the Rods and Cones 353
Wetherell, H. G.: Observations on Cases of Movable Kidney 811
Whooping-Cough 46
Intubation in 392
Rectal Injection of Carbonic Acid in 202
Treatment of 194
Willard, De Forest: Correction of Rachitic Deformities and of the Deformities Following Infantile and Spastic Paralysis 673
Operative Treatment of Knee-Joint Disease 162
Wistar Institute of Anatomy and Biology, The 189, 615
Opening of the 564
Introductory Remarks at the Opening of the 569
The Leaven of Science, An Address Delivered at the Opening of the 573
The Object of the 586

Women, The Etiology of the Diseases Peculiar to 558
Wood, George B.: The Elimination of Ether and its Relation to the Kidney 802
Wood, H. C., On Potassium Permanganate as an Antidote to Vegetable Poisons 747
Wounds, Operations, A Simple Method of Closing Large, by Sliding Skin-Flaps 777
Wounds, Septic, Disinfection of . . 335
Worms, Lumbricoid, in Young Children 192

Xeroderma Pigmentosum 720
Xiphopagus, A New Case of Living 266

Zimmerman, M. W.: A Case of Myxosarcoma of the Right Frontal Lobe, with Optic Neuritis; Autopsy 528